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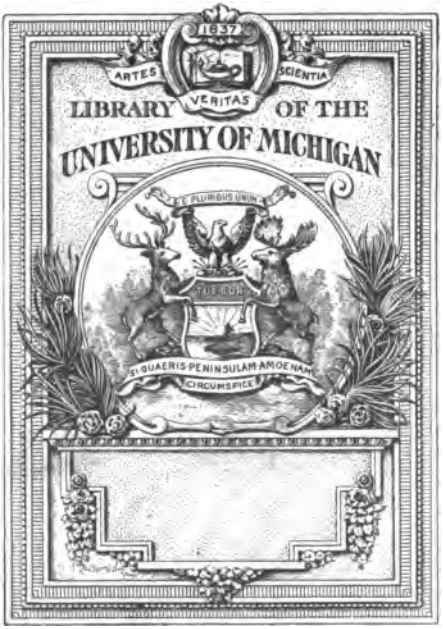
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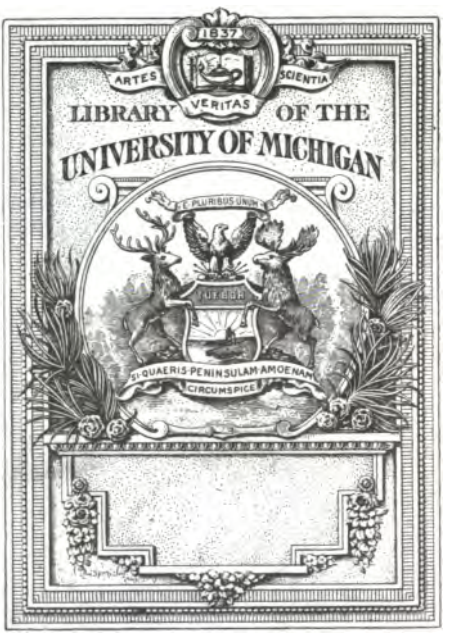
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TRANSACTIONS

OF

THE CLINICAL SOCIETY.

VOL. XV.

LONDON: PRINTED BY
J. E. ADLARD, BARTHOLOMEW CLOSE.

TRANSACTIONS

OF

THE CLINICAL SOCIETY

OF

LONDON.

VOLUME THE FIFTEENTH.

LONDON:
LONGMANS, GREEN, AND CO.
1882.

NOTICE.

THE present Volume comprises the Proceedings of the Society during its Fifteenth Session, October, 1881, to May, 1882.

The Council think it proper to state that the authors of the several communications are alone responsible for the statements, reasonings, and opinions contained in their respective papers.

53, BERNERS STREET, OXFORD STREET;
October, 1882.

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1868 CHOLMELEY, WILLIAM, M.D,, Physician to the Great Northern Hospital, and Margaret Street Infirmary for Consumption; 63, Grosvenor Street, W. (C. 1871–3.) *Trans.* 2.

Orig. Memb. CHURCH, WILLIAM SELBY, M.D., Physician to, and Lecturer on Clinical Medicine at, St. Bartholomew's Hospital; 130, Harley Street, Cavendish Square, W. (C. 1874–6.)

1873 CHURTON, THOMAS, 35, Clarendon Road, Leeds. *Trans.* 1.

Orig. Memb. CLAPTON, EDWARD, M.D., 10A, St. Thomas's Street, Southwark, S.E. (C. 1872–4.) *Trans.* 1.

Orig. Memb. CLARK, ANDREW, M.D. (V.P.), Physician to, and Lecturer on Medicine at, the London Hospital; 16, Cavendish Square, W. (C. 1876–8, V.P. 1880–82.) *Trans.* 1.

1874 CLARK, ANDREW, Assistant Surgeon to, and Lecturer on Practical Surgery at, the Middlesex Hospital; 19, Cavendish Place, Cavendish Square, W.

1877 †CLAY, ROBERT HOGARTH, M.D., 4, Windsor Villas, Plymouth.

1882 CLIPPINGDALE, SAMUEL DODD, M.D., 49, Church Street, Kensington, W.

1877 CLUTTON, HENRY HUGH, M.A., Assistant Surgeon to St. Thomas's Hospital; 77, Lambeth Palace Road, S.E. *Trans.* 2.

1878 COLLIE, ALEXANDER, M.D., Fever Hospital (Metropolitan Asylum District), The Grove, Homerton, E.

ELECTED

1882 COLLIER, HERBERT, M.D. Brussels, Marine Villa, Gorleston, Great Yarmouth, Suffolk.

1878 COLLINS, W. M., M.D., M.C., Queen's Univ. I., Scots Guards; 70A, Grosvenor Street, W.

1882 COLQUHOUN, DANIEL, M.D., Assistant Physician to Charing Cross Hospital; Charing Cross Hospital.

1872 COOKE, THOMAS, Assistant Surgeon to the Westminster Hospital; 16, Woburn Place, Russell Square, W.C.

1868 COOPER, FRANK W., Leytonstone, Essex.

1880 COTTLE, WYNDHAM, M.B., Senior Assistant Surgeon to the Hospital for Diseases of the Skin, Blackfriars; 3, Savile Row, W.

Orig. Memb. COUPER, JOHN, Surgeon to the London Hospital and Assistant Surgeon to the Royal London Ophthalmic Hospital; 80, Grosvenor Street, W. (C. 1874.)

1875 COUPLAND, SIDNEY, M.D. (*Hon. Secretary*), Physician to, and Lecturer on Pathological Anatomy at, the Middlesex Hospital; 14, Weymouth Street, Portland Place, W. *Trans.* 3.

1881 CREIGHTON, CHARLES, M.D., 25, Savile Row, W.

1879 CRIPPS, WILLIAM HARRISON, Surgical Registrar to St. Bartholomew's Hospital; Surgeon to the Great Northern Hospital; 6, Stratford Place, Oxford Street, W. *Trans.* 3.

1872 CRITCHETT, ANDERSON, Ophthalmic Surgeon to St. Mary's Hospital; Ophthalmic Surgeon to the Royal Free Hospital; 21, Harley Street, W.

1877 CROCKER, HENRY RADCLIFFE, M.D., Physician to the Skin Department, University College Hospital; Assistant Physician and Pathologist to the East London Hospital for Children; 28, Welbeck Street, Cavendish Square, W. *Trans.* 11.

Orig. Memb. CROFT, JOHN (V.P.), Surgeon to St. Thomas's Hospital; 48, Brook Street, Grosvenor Square, W. (C. 1870–2.) *Trans.* 9.

1872 DALBY, WILLIAM BARTLETT, M.B., Aural Surgeon to St. George's Hospital; 18, Savile Row, W. (C. 1879–81.) *Trans.* 3.

1882 DALLAWAY, J. W. DENNIS, Langham Hotel.

ELECTED

Orig. Memb. DAVIES, HERBERT, M.D., Senior Physician to, and Lecturer on Medicine at, the London Hospital; 23, Finsbury Square, E.C. (V.P. 1877.)

1879 DAVIES-COLLEY, J. NEVILLE C., M.B., M.C., Surgeon to Guy's Hospital; 36, Harley Street, Cavendish Square, W. *Trans.* 2.

Orig. Memb. DAVIS, JOHN HALL, M.D., Obstetric Physician to, and Lecturer on Midwifery and Diseases of Women and Children at, the Middlesex Hospital; 37, Gloucester Place, Portman Square, W. (C. 1870.) *Trans.* 1.

1879 DAVY, HENRY, M.B., 34, Southernhay, Exeter.

1868 DAY, WILLIAM HENRY, M.D., Physician to the Samaritan Free Hospital for Women and Children; 10, Manchester Square, W. *Trans.* 5.

1872 DE CASTRO, JAMES CATO, M.B., Pau, France.

1879 †DENNIS, FREDERIC S., M.D., 21, East 21st Street, New York, U.S.

1875 DENT, CLINTON T., Assistant Surgeon to St. George's Hospital; 19, Savile Row, W. *Trans.* 1.

Orig. Memb. DICKINSON, WILLIAM HOWSHIP, M.D., Physician to, and Lecturer on Medicine at, St. George's Hospital; Physician to the Hospital for Sick Children; 9, Chesterfield Street, Mayfair, W. (C. 1874–5.)

1871 DIVER, EBENEZER, M.D., Caterham Valley.

1873 DONKIN, ARTHUR SCOTT, M.D. *Trans* 2.

Orig. Memb. DOWN, JOHN LANGDON H., M.D., Physician to, and Lecturer on Medicine at, the London Hospital; 81, Harley Street, W. (C. 1870–2.) *Trans.* 1.

1874 DOWSE, THOMAS STRETCH, M.D., 14, Welbeck Street, Cavendish Square, W. *Trans.* 5.

1868 DRAGE, CHARLES, M.D., Hatfield, Herts.

1879 DREWITT, F. G. DAWTREY, M.B., Savile Club, 15, Savile Row, and 52, Brook Street, Grosvenor Square, W.

Orig. Memb. DUCKWORTH, DYCE, M.D., Assistant Physician to St. Bartholomew's Hospital; 11, Grafton Street, Bond Street, W. (C. 1875–7.) *Trans.* 10.

Orig. Memb. DUFFIN, ALFRED B., M.D., Physician to King's College Hospital, Professor of Pathological Anatomy in King's College, London; 18, Devonshire Street, Portland Place, W. (C. 1872–4.) *Trans.* 6.

ELECTED

1869 DUKE, OLLIVER THOMAS, M.B., Surgeon, Bengal Army, India.

Orig. Memb. DURHAM, ARTHUR EDWARD, Surgeon to, and Lecturer on Surgery at, Guy's Hospital; 82, Brook Street, W. (C. 1867–9.) *Trans.* 4.

Orig. Memb. EDIS, ARTHUR W., M.D., Assistant Obstetric Physician to the Middlesex Hospital; 22, Wimpole Street, Cavendish Square, W. *Trans.* 1.

1881 ENGLISH, THOMAS JOHNSTON, M.D., 128, Fulham Road, S.W.

Orig. Memb. ERICHSEN, JOHN E., F.R.S., Holme Professor of Clinical Surgery in University College, and Senior Surgeon to University College Hospital; 6, Cavendish Place, Cavendish Square, W. (V.P. 1869–71.)

1876 EVANS, GEORGE HENRY, M.D. *Trans.* 1.

1868 EVANS, JULIAN, M.B., Assistant Physician, Victoria Hospital for Sick Children; 123, Finborough Road, Redclyffe Square, S.W.

1877 EWART, WILLIAM, M.B., Assistant Physician to, and Lecturer on Physiological Chemistry at, St. George's Hospital; Assistant Physician to the Hospital for Consumption, Brompton; 33, Curzon Street, Mayfair, W.

Orig. Memb. FAGGE, CHARLES HILTON, M.D., Physician to, and Lecturer on Pathology at, Guy's Hospital; 76, Grosvenor Street, W. (C. 1875–7.) *Trans.* 2.

1868 FAIRBANK, FREDERICK ROYSTON, M.D., 46, Hall Gate, Doncaster. *Trans.* 1.

1872 FARQUHARSON, ROBERT, M.D., M.P. (C. 1879–80.) *Trans.* 3.

1872 FENWICK, J. C. J., M.B., 16, Old Elvet, Durham.

1878 FIELD, GEORGE P., Aural Surgeon to St. Mary's Hospital; 31, Lower Seymour Street, Portman Square, W.

1876 FINLAY, DAVID WHITE, M.D., Assistant Physician to the Middlesex Hospital; 21, Montagu Street, Portman Square, W. *Trans.* 1.

1868 FISH, JOHN CROCKETT, M.D., 92, Wimpole Street, Cavendish Square, W. (C. 1869–70.)

ELECTED

1872 FISHER, FREDERIC R., Assistant Surgeon to the Victoria Hospital for Sick Children; 79, Grosvenor Street, W.

1878 *FONMARTIN, HENRY DE, M.D. Par., Knaphill, Woking, Surrey.

1881 FOWLER, JAMES KINGSTON, M.B., Assistant Physician to the Middlesex Hospital, and Assistant Physician to the Hospital for Consumption, Brompton; 35, Clarges Street, Piccadilly, W.

1878 FOX, THOMAS COLCOTT, M.B. Lond., B.A. Camb., 14, Harley Street, Cavendish Square, W. *Trans.* 3.

Orig. Memb. FOX, WILSON, M.D., F.R.S., Physician Extraordinary to H.M. the Queen; Holme Professor of Clinical Medicine in University College, and Physician to University College Hospital; 67, Grosvenor Street, W. (C. 1873, V.P. 1878–9.)

1868 GANT, FREDERICK JAMES, Surgeon to the Royal Free Hospital; 16, Connaught Square, W. (C. 1877–9.) *Trans* 2.

1879 GARSTANG, THOMAS WALTER HARROPP, Oakleigh, Dobcross, near Manchester.

1868 GLOVER, JAMES GREY, M.D., Hon. Surgeon to the Holloway and North Islington Dispensary; 33, Compton Terrace, Islington, N. (C. 1878–80.) *Trans.* 2.

1875 GODLEE, RICKMAN JOHN, M.S., M.B. (C.), Assistant Surgeon to University College Hospital; 81, Wimpole Street, Cavendish Square, W. (C. 1882.) *Trans.* 4.

1882 GOLDIE, ROBERT WILLIAM, Medical Superintendent, Poplar and Stepney Sick Asylum; Devons Road, Bromley.

1878 GOLDING-BIRD, C. H., M.B., Assistant Surgeon to Guy's Hospital; 13, St. Thomas's Street, Southwark, S.E. *Trans.* 2.

1875 GOODHART, JAMES FREDERICK, M.D. (C.), Assistant Physician to, and Curator of the Museum at, Guy's Hospital; 27, Weymouth Street, Portland Place, W. (C. 1880–2.) *Trans.* 7.

1869 GOODRIDGE, HENRY FREDERICK AUGUSTUS, M.D., Physician to the Bath Royal United Hospital; Bath.

ELECTED

1882 GOODSALL, D. H., 7, Portland Place, W.

1881 GORDON, HUGH ALEX., M.D., Holloway Prison, Camden Road.

1877 GOULD, A. PEARCE, M.S., Assistant Surgeon to, and Lecturer on Anatomy at, the Westminster Hospital; Surgeon to the North-West London Hospital; 16, Queen Anne Street, Cavendish Square, W. *Trans.* 5.

1871 GOVER, ROBERT M., M.B., 12, Hereford Gardens, W.

1875 GOWERS, WILLIAM RICHARD, M.D. (C.), Assistant Physician to University College Hospital; 50, Queen Anne Street, Cavendish Square, W. (C. 1881–2.) *Trans.* 4.

1868 GREEN, T. HENRY, M.D., Physician to, and Lecturer on Pathology at, the Charing Cross Hospital; 74, Wimpole Street, W. (C. 1877–9.) *Trans.* 2.

1875 GREENFIELD, WILLIAM SMITH, M.D., Professor of General Pathology in the University of Edinburgh; 7, Heriot Row, Edinburgh. (C. 1881.) *Trans.* 3.

Orig. Memb. GREENHOW, EDWARD HEADLAM, M.D., F.R.S., Consulting Physician to the Middlesex Hospital; Castle Lodge, Reigate. (T. 1867–78, P. 1879–80.) *Trans.* 24.

1868 †GUENEAU DE MUSSY, HENRI, M.D., 15, Rue du Cirque, Paris.

Orig. Memb. GULL, Sir WILLIAM WITHEY, Bart., M.D., D.C.L., F.R.S., Physician Extraordinary to the Queen; 74, Brook Street, W. (V.P. 1868–70, P. 1871–2.) *Trans.* 6.

Orig. Memb. HABERSHON, SAMUEL OSBORNE, M.D., 70, Brook Street, W. (C. 1873, V.P. 1878–9.) *Trans.* 5.

1882 HADDEN, WALTER BAUGH, M.D., Demonstrator of Morbid Anatomy at St. Thomas's Hospital; 21, Welbeck Street, Cavendish Square, W. *Trans.* 1.

1875 HALE, C. D. B., 8, Sussex Gardens, Hyde Park, W.

1878 HALL, F. DE HAVILLAND, M.D., Assistant Physician to the Westminster Hospital; 46, Queen Anne Street, Cavendish Square, W. *Trans.* 2.

1878 HAMILTON, J. LAWRENCE, L.R.C.P. Ed., 34, Gloucester Terrace, Hyde Park, W.

1873 HARLEY, GEORGE, M.D., F.R.S., 25, Harley Street, Cavendish Square, W.

ELECTED

Orig. Memb. HARLEY, JOHN, M.D., F.L.S., Physician to, and Lecturer on General Anatomy and Physiology at, St. Thomas's Hospital; 39, Brook Street, Grosvenor Square, W. (C. 1875.) *Trans.* 1.

1872 HARRIS, HENRY, M.D., Trengweath, Redruth, Cornwall.

1881 HARRISON, CHARLES EDWARD, M.B., Grenadier Guards Hospital, Rochester Row, S.W.

Orig. Memb. HART, ERNEST, 38, Wimpole Street, Cavendish Square, W. (C. 1867–8.)

1869 HAWARD, J. WARRINGTON (*Hon. Secretary*), Surgeon to St. George's Hospital; 16, Savile Row, Burlington Gardens, W. (C. 1876–8. S. 1881–2.) *Trans.* 10.

Orig. Memb. HEATH, CHRISTOPHER (*Treasurer*), Surgeon to University College Hospital, and Holme Professor of Clinical Surgery in University College; 36, Cavendish Square, W. (C. 1867–71, V.P. 1876–8, T. 1879–82.) *Trans.* 15.

1879 HENDERSON, GEORGE COURTENAY, M.B., London Fever Hospital, Liverpool Road, N.

1868 †HESLOP, THOMAS PRETIOUS, M.D., Physician to the Children's Hospital, Birmingham.

1868 HEWAN, ARCHIBALD, M.D., 9, Chester Square, S.W.

Orig. Memb. HEWETT, PRESCOTT GARDNER, F.R.S., Surgeon-Extraordinary to H.M. the Queen; Consulting Surgeon to St. George's Hospital; 1, Chesterfield Street, Mayfair, W. (V.P. 1869–71, P. 1873–4.) *Trans.* 3.

Orig. Memb. HEWITT, GRAILY, M.D., Professor of Midwifery in University College, and Obstetric Physician to University College Hospital; 36, Berkeley Square, W. (C. 1878–9.) *Trans.* 1.

Orig. Memb. HICKS, J. BRAXTON, M.D., F.R.S., F.L.S., Physician Accoucheur to, and Lecturer on Midwifery and the Diseases of Women and Children at, Guy's Hospital; 24, George Street, Hanover Square, W. (C. 1875–7.)

1868 HILL, BERKELEY, M.B, Professor of Clinical Surgery in University College, London, Surgeon to University College Hospital, and Surgeon to the Lock Hospital; 55, Wimpole Street, W. (C. 1870–1.) *Trans.* 7.

ELECTED

1874 HOLDERNESS, WILLIAM BROWN, 15, Park Street, Windsor.

1868 †HOLMAN, CONSTANTINE, M.D., Reigate, Surrey.

1868 HOLMAN, WILLIAM HENRY, M.B., 68, Adelaide Road, South Hampstead, N.W.

Orig. Memb. HOLMES, TIMOTHY, Surgeon to, and Lecturer on Surgery at, St. George's Hospital; Surgeon-in-Chief to the Metropolitan Police Force; 18, Great Cumberland Place, Hyde Park, W. (C. 1867–9, V.P. 1873–5.) *Trans.* 13.

Orig. Memb. HOLT, BARNARD WIGHT, Consulting Surgeon to, and Lecturer on Clinical Surgery at, the Westminster Hospital; Medical Officer of Health for Westminster; 14, Savile Row, W. *Trans.* 1.

Orig. Memb. HOLTHOUSE, CARSTEN. (C. 1870–2.) *Trans.* 8.

1878 HOOD, DONALD WILLIAM CHARLES, M.D., Assistant Physician to the West London Hospital; 43, Green Street, Park Lane, W.

1873 HOPE, WILLIAM, M.D., Senior Physician to Queen Charlotte's Lying-in Hospital; 56, Curzon Street, Mayfair, W.

1878 HOUGHTON, WALTER B., M.B., late Assistant Physician to Charing Cross Hospital; Church Villa, Warrior Square, St. Leonard's-on-Sea.

1880 HOVELL, T. MARK, Assistant Aural Surgeon to the London Hospital; 3, Mansfield Street, Portland Place, W.

1876 HOWSE, HENRY GREENWAY, M.S., Surgeon to, and Lecturer on Anatomy at, Guy's Hospital; Surgeon to the Evelina Hospital for Sick Children; 10, St. Thomas's Street, S.E. (C. 1881–2.) *Trans.* 2.

Orig. Memb. HULKE, JOHN WHITAKER, F.R.S., Surgeon to, and Lecturer on Surgery at, the Middlesex Hospital, and Surgeon to the Royal London Ophthalmic Hospital; 10, Old Burlington Street, W. (C. 1867–9, V.P. 1878–80.) *Trans.* 13.

Orig. Memb. HUMPHRY, GEORGE MURRAY, M.D., F.R.S., Professor of Anatomy in the University of Cambridge, and Surgeon to Addenbrooke's Hospital, Cambridge. (V.P. 1867–70.)

ELECTED

Orig. Memb. HUTCHINSON, JONATHAN, F.R.S., Surgeon to, and Lecturer on Surgery at, the London Hospital; Surgeon to the Hospital for Diseases of the Skin, and Surgeon to the Royal London Ophthalmic Hospital; 15, Cavendish Square, W. (C. 1867–8, V.P. 1875–6) *Trans.* 8.

1879 INKSON, JAMES, M.D., Surgeon-Major, Army Medical Department [care of J. TAYLOR, 37, Albert Square, Clapham].

Orig. Memb. JACKSON, J. HUGHLINGS, M.D., Physician to, and Lecturer on Physiology at, the London Hospital; Physician to the National Hospital for the Paralysed and Epileptic; 3, Manchester Square, W. (C. 1872–3.) *Trans.* 1.

1877 JACOBSON, WALTER HAMILTON ACLAND, M.B., Assistant Surgeon to Guy's Hospital; 41, Finsbury Square.

Orig. Memb. JENNER, Sir WILLIAM, Bart., M.D., K.C.B., D.C.L., LL.D., F.R.S., Physician-in-Ordinary to H.M. the Queen and to H.R.H. the Prince of Wales; Consulting Physician to University College Hospital; 63, Brook Street, W. (V.P. 1867–70, P. 1875–6.) *Trans.* 2.

1875 JESSETT, FREDERICK BOWREMAN, Pier Road, Erith, Kent.

Orig. Memb. JOHNSON, GEORGE, M.D., F.R.S., Physician to King's College Hospital; 11, Savile Row, W. (V.P. 1874–6.) *Trans.* 5.

1878 JOHNSTON, WILLIAM, M.D., M.C., 16, Lonsdale Terrace, Upper Kent Street, Leicester.

Orig. Memb. JONES, SYDNEY, M.B., Surgeon to, and Lecturer on Surgery at, St. Thomas's Hospital; 16, George Street, Hanover Square, W. (C. 1867–8.) *Trans.* 1.

1872 JONES, THOMAS RIDGE, M.D., Physician, Victoria Hospital for Sick Children; 4, Chesham Place, Belgrave Square, S.W.

1876 JORDAN, FURNEAUX, Surgeon to the Queen's Hospital, Birmingham; 22, Colmore Row, Birmingham. *Trans.* 1.

1878 KEETLEY, CHARLES ROBERT BELL, Assistant Surgeon to the West London Hospital; 20, Princes Street, Hanover Square, W. *Trans.* 2.

ELECTED

Orig. Memb. KELLY, CHARLES, M.D., Medical Officer of Health for the West Sussex District; Worthing, Sussex.

1882 KESTEVEN, WILLIAM HENRY, 401, Holloway Road, N. *Trans.* 1.

1878 LACEY, THOMAS WARNER, 196, Burrage Road, Plumstead, S.E.

1873 LACY, C. DE LACY, 5, Ovington Square, Brompton.

Orig. Memb. LANGTON, JOHN, Surgeon to, and Lecturer on Anatomy at, St. Bartholomew's Hospital, and Surgeon to the City of London Truss Society; 2, Harley Street, W. (C. 1878–80.) *Trans.* 2.

1869 LAWRENCE, JAMES E., Geraldine Lodge, East Hill, Wandsworth, S.W.

Orig. Memb. LAWSON, GEORGE (V.P.), Surgeon to, and Joint Lecturer on Surgery at, the Middlesex Hospital, and Surgeon to the Royal London Ophthalmic Hospital; 12, Harley Street, W. (S. 1871–3, C. 1874–6, V.P. 1881–2.) *Trans.* 14.

1877 LEDIARD, HENRY AMBROSE, M.D., Surgeon to the Cumberland Infirmary; 78, Lowther Street, Carlisle. *Trans.* 1.

Orig. Memb. LEE, HENRY, Consulting Surgeon to St. George's Hospital; 9, Savile Row, W. (V.P. 1870–2.) *Trans.* 7.

1874 LEE, ROBERT JAMES, M.D., Assistant Physician to the Hospital for Sick Children; 6, Savile Row, W. *Trans.* 1.

1882 LEEDS, THOMAS, 1, Oxford Villas, Balham, S.W.

1877 LEES, DAVID B., M.D., Physician (with charge of outpatients) to, and Lecturer on Materia Medica at, St. Mary's Hospital, and Assistant Physician to the Hospital for Sick Children; 2, Thurloe Houses, Thurloe Square, S.W, *Trans.* 2.

1879 LICHTENBERG, GEORGE, M.D., 47, Finsbury Square.

1878 LISTER, JOSEPH, D.C.L., L.L.D, F.R.S. (*President*), Professor of Clinical Surgery at King's College, and Surgeon to King's College Hospital; 12, Park Crescent, Regent's Park, W. (P. 1881–2.) *Trans.* 3.

1868 LITTLE, LOUIS STROMEYER, China.

ELECTED

1875 LIVEING, EDWARD, M.D., 52, Queen Anne Street, Cavendish Square, W.

1872 LIVEING, ROBERT, M.D, Lecturer on Dermatology, and Physician to the Skin Department at the Middlesex Hospital; 11, Manchester Square, W. *Trans.* 2.

1878 LLOYD, ROBERT HODGENS, M.D., Medical Superintendent Lambeth Infirmary, Pleasant Place, Brook Street, S.E. *Trans.* 1.

1876 LONGHURST, ARTHUR EDWIN TEMPLE, M.D., 22, Wilton Street, Grosvenor Place, S.W.

1881 LUBBOCK, MONTAGU, M.D., Assistant Physician to Charing Cross Hospital; 19, Grosvenor Street, W.

1876 LUCAS, R. CLEMENT, M.B., B.S., Senior Assistant Surgeon to, and Demonstrator of Operative and Practical Surgery at, Guy's Hospital; 18, Finsbury Square, E.C. *Trans.* 4.

1879 LUNN, JOHN REUBEN, Resident Medical Officer; New Marylebone Infirmary, Rackham Street, Ladbroke Grove Road, Notting Hill, W. *Trans.* 1.

1871 MACCORMAC, SIR WILLIAM, Surgeon to, and Lecturer on Surgery at, St. Thomas's Hospital; 13, Harley Street, W. (C 1877–9.) *Trans.* 5.

1881 MCHARDY, MALCOLM MACDONALD, Ophthalmic Surgeon to King's College Hospital; 5, Savile Row, W. *Trans.* 1.

1882 MACKENZIE, FREDERIC MORELL; 10, Hans Place, S.W.

Orig. Memb. MACKENZIE, MORELL, M.D., Physician to the Hospital for Diseases of the Throat; 19, Harley Street, Cavendish Square, W. *Trans.* 4.

1879 MACKENZIE, STEPHEN, M.D., Physician (with charge of out-patients) to, and Lecturer on Medicine at, the London Hospital; 26, Finsbury Square, E.C. *Trans.* 4.

1879 MACLAGAN, THOMAS JOHN, M.D., 9, Cadogan Place, Belgrave Square, S.W.

1875 MACNAMARA, CHARLES, Surgeon to the Westminster Hospital; 13, Grosvenor Street, W. (C. 1879–81.)

1879 MAGILL, JAMES, M.D., M.C., Surgeon, Coldstream Guards; Coldstream Guards Hospital, Vincent Square, Westminster, S.W.

ELECTED

1874 MAHOMED, FRED. AKBAR, M.D., Assistant Physician to Guy's Hospital; 12, St. Thomas's Street, Southwark, S.E. *Trans.* 2.

1881 MAKINS, GEORGE HENRY, Blackheath Park, S.E.

Orig. Memb. †MARCET, WILLIAM, M.D., F.R.S., 39, Grosvenor Street, W. (C. 1867–9.) *Trans.* 1.

1868 MARSH, F. HOWARD (C.), Assistant Surgeon to St. Bartholomew's Hospital; 36, Bruton Street, Berkeley Square, W. (C. 1876–7, 1881–82, S. 1878–80.) *Trans.* 8.

1875 MARSHALL, F. J., Resident Medical Officer, St. George's Hospital, W.

1868 †MAY, EDWARD HOOPER, M.D., High Cross, Tottenham, Middlesex, N.

1868 MEADOWS, ALFRED, M.D., Physician-Accoucheur to, and Lecturer on Midwifery at, St. Mary's Hospital; 27, George Street, Hanover Square, W. (C. 1871-4.) *Trans.* 1.

1876 MELLADEW, H. F. L., M.D., Surgeon, Royal Horse Guards; Regent's Park Barracks, N.W.

1878 MEREDITH, WILLIAM APPLETON, M.B., C.M., Assistant Surgeon to the Samaritan Free Hospital for Women and Children; 6, Queen Anne Street, Cavendish Square.

1873 MICKLE, WILLIAM JULIUS, M.D., Physician Superintendent, Grove Hall Asylum, Bow, E.

1877 MILNER, EDWARD, Surgeon to the Lock Hospital; 32, New Cavendish Street, Portland Place, W.

1874 MORGAN, JOHN HAMMOND, Assistant Surgeon to the Charing Cross Hospital, and to the Hospital for Sick Children, Great Ormond Street; 12, Chapel Street, Park Lane, W. *Trans.* 1.

1877 MORRIS, HENRY, M.B., Surgeon to, and Lecturer on Clinical Surgery at, the Middlesex Hospital; 2, Mansfield Street, Portland Place, W. *Trans.* 5.

1877 MORRIS, MALCOLM ALEX., Lecturer on Skin Diseases at St. Mary's Hospital; 63, Montagu Square, W. *Trans.* 1.

1879 MOULLIN, CHARLES W. MANSELL, Assistant Surgeon to the London Hospital; 80, Porchester Terrace Hyde Park, W.

ELECTED

Orig. Memb. MOXON, WALTER, M.D., F.L.S., Physician to, and Lecturer on Medicine at, Guy's Hospital; 6, Finsbury Circus, E.C. (C. 1874–6.) *Trans.* 2.

1878 MUIR, JAMES C. P., 44, Cornwall Road, Westbourne Park, W.

1875 MURPHY, SHIRLEY F., 158, Camden Road, N.W.

1868 MYERS, ARTHUR BOWEN RICHARDS, Surgeon to 1st Battalion of the Coldstream Guards; Vincent Square, Westminster, S.W. (C. 1877–9.) *Trans.* 1.

1882 MYERS, A. T., M.B.; 12, Hereford Gardens, Oxford Street, W.

1873 MYRTLE, ANDREW S., M.D., Harrogate.

1874 NANKIVELL, ARTHUR WOLCOT, Resident Surgeon, St. Bartholomew's Hospital, Chatham.

1875 NETTLESHIP, EDWARD (C.), Ophthalmic Surgeon to, and Lecturer on Ophthalmology at, St. Thomas's Hospital; 5, Wimpole Street, Cavendish Square, W. (C. 1881–82.) *Trans.* 1.

Orig. Memb. NORTON, ARTHUR TREHERN, Surgeon to, and Lecturer on Surgery at, St. Mary's Hospital; 6, Wimpole Street, W. (C. 1874–6.) *Trans.* 6.

Orig. Memb. NUNN, THOMAS WILLIAM, Consulting Surgeon to the Middlesex Hospital; 8, Stratford Place, Oxford Street, W. (C. 1873–74.) *Trans.* 5.

1880 O'CONNOR, BERNARD, M.D., 40, Brook Street, Grosvenor Square, W. *Trans.* 1.

Orig. Memb. OGLE, JOHN WILLIAM, M.D., Consulting Physician to St. George's Hospital; 30, Cavendish Square, W. (C. 1867–8.) *Trans.* 6.

1868 †OGLE, WILLIAM, M.D., Physician to the Derbyshire General Infirmary; 98, Friar Gate, Derby.

1868 OPPERT, FRANCIS, M.D.; Germany. *Trans.* 1.

1877 ORD, WILLIAM MILLER, M.D. (C.), Physician to, and Lecturer on Medicine at, St. Thomas's Hospital; 7, Brook Street, Hanover Square, W. (C. 1882.) *Trans.* 5.

1876 OTTLEY, WALTER, M.B., late Demonstrator of Anatomy at University College; 93, Ladbroke Grove, Notting Hill, W.

1877 OWEN, ISAMBARD, M.D., Medical Registrar, St. George's Hospital; 41, Gloucester Gardens, Bishop's Road, W. *Trans.* 1.

ELECTED

1875 PAGE, HERBERT W., M.C., M.B., Surgeon (with charge of out-patients) to, and Lecturer on Surgery at, St. Mary's Hospital; 146, Harley Street, W. (C. 1882.)

Orig. Memb. PAGET, SIR JAMES, Bart., see *List of Honorary Fellows.*

1873 PARKER, ROBERT WILLIAM, Assistant Surgeon, East London Children's Hospital; 8, Old Cavendish Street, W. (C. 1882.) *Trans.* 3.

1881 PARKER, RUSHTON, M.B., Professor of Surgery in University College, Liverpool, and Assistant Surgeon Liverpool Royal Infirmary; 69, Rodney Street, Liverpool. *Trans.* 1.

1881 PASTEUR, WILLIAM, 19, Queen Street, May Fair, W.

Orig. Memb. PAVY, FREDERICK WILLIAM, M.D., F.R.S. (V.P.), Physician to, and Lecturer on Medicine at, Guy's Hospital; 35, Grosvenor Street, W. (C. 1869–71, V.P. 1882.) *Trans.* 3.

1879 PEEL, ROBERT, 130, Collins Street East, Melbourne, Victoria.

1874 PHILLIPS, CHARLES DOUGLAS F., M.D., Lecturer on Materia Medica at the Westminster Hospital; 2, Grosvenor Square, W.

Orig. Memb. PICK, THOMAS PICKERING, Surgeon to, and Lecturer on Surgery at, St. George's Hospital; Surgeon to the Belgrave Hospital for Children; 13, South Eaton Place, Eaton Square, S.W. (S. 1874–7, C. 1878–80.) *Trans.* 3.

1871 †PLAYNE, ALFRED, M.B., Maidenhead.

1868 POLLOCK, JAMES EDWARD, M.D., Physician to the Hospital for Consumption and Diseases of the Chest; 52, Upper Brook Street, Grosvenor Square, W. (C. 1878–80.)

1871 POORE, GEORGE VIVIAN, M.D., Assistant Physician to University College Hospital; 30, Wimpole Street, W. (C. 1879–81.) *Trans.* 2.

1873 PORT, HEINRICH, M.D., Physician to the German Hospital; 48, Finsbury Square, E.C.

1881 POWELL, H. A., M.A., Elm Cottage, Beckenham, Kent.

ELECTED

Orig. Memb. POWELL, R. DOUGLAS, M.D., Physician to the Middlesex Hospital; Physician to the Hospital for Consumption and Diseases of the Chest, Brompton; 62, Wimpole Street, Cavendish Square, W. (C. 1874–76.) *Trans.* 4.

1868 PRENTIS, CHARLES, Surgeon-Major, Bengal Medical Service; India.

Orig. Memb. QUAIN, RICHARD, M.D., F.R.S., Consulting Physician to the Hospital for Consumption and Diseases of the Chest; 67, Harley Street, W. (C. 1867–9.)

Orig. Memb. RAMSKILL, J. SPENCE, M.D., Consulting Physician to, and Lecturer on Medicine at, the London Hospital; Senior Physician to the National Hospital for the Paralysed and Epileptic; 5, St. Helen's Place, Bishopsgate Street, E.C.

1873 RANSFORD, GIFFORD; 27, Gloucester Place, Hyde Park, W.

1868 RASCH, ADOLPHUS A., M.D., Physician for Diseases of Women to the German Hospital; 7, South Street, Finsbury Square, E.C.

1877 RAYNER, HENRY, M.D., Lecturer on Mental Diseases at St. Thomas's Hospital; Middlesex County Lunatic Asylum, Hanwell, W.

1874 REE, FREDERICK G., Royal India Asylum, Ealing, W.

Orig. Memb. REES, GEORGE OWEN, M.D., F.R.S., Consulting Physician to Guy's Hospital; 26, Albemarle Street, Piccadilly, W. (V.P. 1871–3.)

1868 REEVES, HENRY, A., Assistant Surgeon to the London Hospital; 6, Grosvenor Street, W. *Trans.* 2.

Orig. Memb. REYNOLDS, JOHN RUSSELL, M.D., F.R.S., Consulting Physician to University College Hospital; 38, Grosvenor Street, W. (C. 1867–8.)

1868 RICE, MICHAEL W., M.D. (C. 1876–8.)

Orig. Memb. RINGER, SYDNEY, M.D., Professor of the Principles and Practice of Medicine in University College, and Physician to University College Hospital; 15, Cavendish Place, W. (C. 1871–2.)

1877 RIVINGTON, WALTER, M.S., M.B., Surgeon to, and Lecturer on Anatomy at, the London Hospital; 22, Finsbury Square, E.C.

1873 †ROBERTS, DAVID LLOYD, M.D., Physician to St. Mary's Hospital, Manchester; 23, St. John Street, Manchester.

ELECTED

1875 ROGERS, WILLIAM RICHARD, M.D., 56, Berners Street, Oxford Street, W.

1877 ROTH, BERNARD M. S., 48, Wimpole Street, W., and Rossmore, Preston Road, Brighton.

Orig. Memb. ROUSE, JAMES, Surgeon to St. George's Hospital, and to the Royal Ophthalmic Hospital, Charing Cross; 2, Wilton Street, Grosvenor Place, S.W. (C. 1875–7.) *Trans.* 1.

1874 ROWLAND, EDWARD R., Pelham Lodge, Isleworth.

1868 SANDERSON, HUGH JAMES, M.D., 26, Upper Berkeley Street, W.

Orig. Memb. SANDERSON, JOHN BURDON, M.D., F.R.S., Jodrell Professor of Human Physiology in University College; 26, Gordon Square, W.C. (S. 1867–9, C. 1870, V.P. 1871–3.) *Trans.* 3.

1878 SANGSTER, ALFRED, M.B., Lecturer on Skin Diseases at the Charing Cross Hospital; 7, Old Burlington Street, W. *Trans.* 4.

1873 SAVAGE, GEORGE HENRY, M.D. (C.), Bethlem Royal Hospital, St. George's Road, S.E. (C. 1882.)

1877 SEATON, EDWARD, M.D., Physician to the Nottingham General Dispensary; 8, Oxford Street, Nottingham.

1869 SEDGWICK, LEONARD WILLIAM, M.D., 2, Gloucester Terrace, Hyde Park, W. (C. 1879–81.)

1878 SEMON, FELIX, M.D., Assistant Physician for Diseases of the Throat to St. Thomas's Hospital; 59, Welbeck Street, Cavendish Square, W. *Trans.* 3.

1875 SHERWOOD, ARTHUR PAUL, Eastbourne.

1876 SHUTER, JAMES, 58, New Broad Street, E.C.

Orig. Memb. SIBLEY, SEPTIMUS WILLIAM, 7, Harley Street, Cavendish Square, W. (C. 1871–4.)

Orig. Memb. SIMON, JOHN, C.B., D.C.L., F.R.S., Consulting Surgeon to St. Thomas's Hospital; 40, Kensington Square, W. (V.P. 1867–70.)

1879 SKERRITT, EDWARD MARKHAM, M.D.; Coburg Villa, Richmond Hill, Clifton, Bristol. *Trans.* 2.

1877 SKINNER, WILLIAM A., 45, Lower Belgrave Street, Eaton Square, S.W.

1872 SLIGHT, GEORGE, M.D., 25, Brewer Street, Regent Street, W.

ELECTED

1882 SMITH, E. NOBLE, 24, Queen Anne Street, Cavendish Square, W.

1875 SMITH, GILBART, M.A., M.D., Assistant Physician to the London Hospital; Physician to the Royal Hospital for Diseases of the Chest, City Road; 68, Harley Street, Cavendish Square, W.

1868 SMITH, HEYWOOD, M.D., Physician to the Hospital for Women, and Physician to the British Lying-in Hospital; 18, Harley Street, Cavendish Square. W.

1868 SMITH, PROTHEROE, M.D., Physician to the Hospital for Women; 42, Park Street, Grosvenor Square, W.

Orig. Memb. SMITH, THOMAS (V.P.), Surgeon to, and Lecturer on Clinical Surgery at, St. Bartholomew's Hospital, and Surgeon to the Hospital for Sick Children; 5, Stratford Place, Oxford Street, W. (C. 1869–71, V.P. 1880–82.) *Trans.* 13.

1873 SMITH, WILLIAM JOHNSON, Surgeon to the Seamen's Hospital, Greenwich, S.E.

1873 SMITH, WILLIAM WILBERFORCE, M.D., 14, Stratford Place, Oxford Street, W.

1868 SNOW, WILLIAM V., M.D., Richmond Gardens, Bournemouth.

Orig. Memb. SOUTHEY, REGINALD, M.D., Physician to, and Lecturer on Forensic Medicine and Hygiene at, St. Bartholomew's Hospital; 6, Harley Street, Cavendish Square, W. (C. 1867–70, 1876–8, S. 1873–5.) *Trans.* 15.

1882 SPOONER, FREDERICK HENRY, M.D., 24, Pembury Road, Clapton, E.

1876 SQUIRE, BALMANNO, M.B., 24, Weymouth Street, Portland Place, W. *Trans.* 5.

1879 STAPLES, FRANCIS PATRICK, Assistant Professor of Military Surgery, Netley; Army Medical Department, Royal Victoria Hospital, Netley, and Junior Army and Navy Club, Grafton Street, Piccadilly [Station Hospital, Gibraltar].

1881 STARTIN, JAMES, 16A, Sackville Street, Piccadilly, W.

Orig. Memb. STEWART, ALEXANDER PATRICK, M.D., Consulting Physician to the Middlesex Hospital; 75, Grosvenor Street, W. (V.P. 1872–4.)

ELECTED

1871 STEWART, WILLIAM EDWARD, 16, Harley Street, Cavendish Square, W.

1874 †STIRLING, EDWARD C., M.D., late Assistant Surgeon to, and Lecturer on Physiology at, St. George's Hospital; Adelaide, South Australia [care of T. GEMMELL, Esq., 32, The Grove, Boltons, S.W.]

1881 STOKES, HENRY FRASER, 258, St. Paul's Road, Highbury.

1878 STOKES, WILLIAM, M.D., Professor of Surgery, Royal College of Surgeons, Ireland; Surgeon to the Richmond Surgical Hospital; 5, Merrion Square North, Dublin. *Trans.* 2.

1878 STRUGNELL, FREDERICK WILLIAM, 45, Highgate Road, Highgate, N.

1878 †STURGE, WILLIAM ALLEN, M.D., late Assistant Physician to the Royal Free Hospital; 9, Rue Longchamp, Nice, Alpes Maritimes, France. *Trans.* 4.

1872 *SUTHERLAND, HENRY, M.D., Lecturer on Insanity, Westminster Hospital; 6, Richmond Terrace, Whitehall, S.W. *Trans.* 1.

1868 SUTRO, SIGISMUND, M.D., Senior Physician to the German Hospital; 37A, Finsbury Square, E.C.

Orig. Memb. SUTTON, HENRY GAWEN, M.B., Physician to, and Lecturer on Pathology at, the London Hospital, and Physician to the City of London Hospital for Diseases of the Chest; 9, Finsbury Square, E.C. (C. 1878.) *Trans.* 2.

1868 TATHAM, JOHN, M.D., Assistant Physician to the Hospital for Consumption and Diseases of the Chest; 12, George Street, Hanover Square, W.

1878 TAYLER, FRANCIS THOMAS, B.A., M.B., 224, Lewisham High Road, S.E.

1875 TAYLOR, FREDERICK, M.D. (C.), Assistant Physician to, and Lecturer on Materia Medica at, Guy's Hospital; 11, St. Thomas's Street, Southwark, S.E. (S. 1879–81, C. 1882.) *Trans.* 6.

1882 TAYLOR, SEYMOUR, M.D., St. Thomas's Hospital, S.E.

ELECTED

Orig. Memb. TEEVAN, WILLIAM F. (C.), Bellevue Cottage, Hythe, Kent. (C. 1880–2.) *Trans.* 8.

Orig. Memb. THOMPSON, EDMUND SYMES, M.D. (C.), Physician to the Hospital for Consumption and Diseases of the Chest; Gresham Professor of Medicine; 33, Cavendish Square, W. (C. 1880–82.) *Trans.* 1.

Orig. Memb. THOMPSON, Sir HENRY, Knt., Surgeon-Extraordinary to H.M. the King of the Belgians; Emeritus Professor of Clinical Surgery in University College; 35, Wimpole Street, W. (C. 1867–8.) *Trans.* 1.

Orig. Memb. THOMPSON, HENRY, M.D., Fellow of St. John's College, Cambridge; Consulting Physician to the Middlesex Hospital; 53, Queen Anne Street, W. (V.P. 1875–7.) *Trans.* 4.

1872 THORNTON, WILLIAM PUGIN, Surgeon to the Marylebone Dispensary; 42, Devonshire Street, Portland Place, W. *Trans.* 5.

1876 THRUPP, JAMES GODFREY.

1877 TIBBITS, HERBERT, F.R.C.P. Ed., 68, Wimpole Street, Cavendish Square, W.

1874 TRAVERS, WILLIAM, M.D., 2, Phillimore Gardens, Kensington, W.

1882 TURNER, FRANCIS CHARLEWOOD, M.A., M.D., Physician to the London Hospital; 15, Finsbury Square, E.C.

1882 TURNER, GEO. ROBERTSON, 9, Sussex Gardens, Hyde Park, W.

1877 TWEEDY, JOHN, Professor of Ophthalmic Medicine and Surgery at University College, and Assistant Ophthalmic Surgeon to University College Hospital; Assistant Surgeou to the Royal London Ophthalmic Hospital; 24, Harley Street, Cavendish Square, W.

1878 TYSON, WILLIAM JOSEPH, M.D., 10, Langhorne Gardens, Folkestone. *Trans.* 3.

1881 UHTHOFF, JOHN CALDWELL, M.D., 46, Western Road, Hove, Brighton.

1868 VENNING, EDGCOMBE, 87, Sloane Street, S.W. (C. 1876–8.) *Trans.* 2.

ELECTED

1876 WADHAM, WILLIAM, M.D., Physician to, and Lecturer on Clinical Medicine at, St. George's Hospital; 14, Park Lane, W.

1868 WAGSTAFFE, WILLIAM WARWICK. (C. 1878.)

1869 WALKER, JOSEPH, Dental Surgeon to the Westminster Hospital; 22, Grosvenor Street, W.

1875 WALSHAM, WILLIAM J. (C.), Assistant Surgeon to, and Demonstrator of Anatomy and Operative Surgery at, St. Bartholomew's Hospital; Surgeon to the Metropolitan Free Hospital and to the Royal Hospital for Diseases of the Chest; 27, Weymouth Street, Portland Place, W. (C. 1882.) *Trans.* 1.

1870 WARWICK, RICHARD ARCHER, M.D., Surgeon to the Richmond Infirmary; 5, Hill Rise, Richmond, S.W.

1876 WATERS, JOHN H., M.D., 101, Jermyn Street, St. James's, S.W.

1868 WATKINS, EDWIN T., M.D. (C.), 61, Guilford Street, W.C. (C. 1881–82.)

Orig. Memb. WATSON, WILLIAM SPENCER, M.B. (C.), Surgeon to the Great Northern Hospital; Surgeon to the Royal South London Ophthalmic Hospital; 7, Henrietta Street, Cavendish Square, W. (C. 1880–82.) *Trans.* 9.

1879 WATTEVILLE, ARMAND DE, M.A., B.Sc., Medical Electrician to St Mary's Hospital; 9, Wimpole Street, W.

Orig. Memb. WEBER, HERMANN, M.D., Physician to the German Hospital; 10, Grosvenor Street, W. (C. 1867–71, V.P. 1873–5.) *Trans.* 9.

1876 WEIR, ARCHIBALD, M.D., St. Mungho's, Great Malvern.

1868 WELLS, THOMAS SPENCER, Surgeon in Ordinary to H.M.'s Household; Surgeon to the Samaritan Free Hospital; 3, Upper Grosvenor Street, W. (C. 1873.)

1882 WEST, SAMUEL, M.B., Casualty Physician and Medical Tutor at St. Bartholomew's Hospital; Assistant Physician to the City of London Hospital for Diseases of the Chest, Victoria Park; 15, Wimpole Street, Cavendish Square, W.

ELECTED

1874 WHEELHOUSE, CLAUDIUS GALEN, Senior Surgeon to the Leeds General Infirmary, and Lecturer on Surgery, Leeds Medical School; Hilary Place, Leeds. *Trans.* 1.

1868 WHIPHAM, THOMAS TILLYER, M.B., Physician to, and Lecturer on Clinical Medicine at, St. George's Hospital; 11, Grosvenor Street, Grosvenor Square, W. (C. 1878–80.) *Trans.* 8.

1874 WHISTLER, W. M., M.D., 28, Wimpole Street.

1882 WHITTLE, EDWARD GEORGE, M.B., 65, Dyke Road, Brighton.

1871 WIGHT, GEORGE, M.B., C.M.; 428, Liverpool Road, N.

1879 WILCOX, HENRY, M.B., 170, Lewisham High Road, S.E.

Orig. Memb. WILKS, SAMUEL, M.D., F.R.S., Physician to Guy's Hospital; 72, Grosvenor Street, W. (C. 1871–2.) *Trans.* 1.

Orig. Memb. WILLETT, ALFRED, Surgeon to St. Bartholomew's Hospital; 36, Wimpole Street, W. (C. 1872–5.)

Orig. Memb. WILLIAMS, CHARLES THEODORE, M.D., Physician to the Hospital for Consumption and Diseases of the Chest; 47, Upper Brook Street, Grosvenor Square, W. (C. 1877–9.) *Trans.* 7.

1881 WILLIAMS, JOHN, M.D., Assistant Obstetric Physician to University College Hospital; 28, Harley Street, Cavendish Square, W.

1870 WILLIAMS, WILLIAM RHYS, M.D., Commissioner in Lunacy; 19, Whitehall Place, S.W.

1876 WILLIAMSON, JAMES MANN, M.D.; Ventnor, Isle of Wight.

Orig. Memb. WILLIS, FRANCIS, M.D., Braceborough, Stamford.

1868 WILTSHIRE, ALFRED, M.D. (C.), Joint Lecturer on Obstetrics, and Assistant Physician-Accoucheur, St. Mary's Hospital; 57, Wimpole Street, W. (C. 1880–82.) *Trans.* 1.

1880 WOOD, JOHN, F.R.S., Professor of Clinical Surgery in King's College, London, and Senior Surgeon to King's College Hospital; 61, Wimpole Street, Cavendish Square, W.

Elected

1879 **Woodward, George P. M., M.D., Deputy Surgeon-General; Clarendon House, Norwood Road, Tulse Hill.**

1872 **Yeo, J. Burney, M.D. (C.), Physician to King's College Hospital; 44, Hertford Street, Mayfair, W. (C. 1881–2.)** *Trans.* 4.

REPORT OF THE COUNCIL

OF THE

CLINICAL SOCIETY.

IN looking back upon the past year, the Council is able to congratulate the Society upon its continued success, as shown by the large attendances at its meetings, the interest of the cases brought forward, and the importance of the subsequent discussions.

The Society now numbers 341 members, of whom 70 are non-resident. Of the resident members 14 have been elected during the past year.

The Council thought that the meeting of the International Medical Congress in London during the year offered an opportunity for the nomination of Foreign Honorary Members, of whom none have been elected since 1876, and the names of nine distinguished foreign physicians and surgeons were proposed to the Society and elected in due form. With these was associated the name of the President of the International Medical Congress, Sir James Paget, a former President of the Society, who was nominated and elected an Honorary Member.

The Society has sustained during the past year the loss by death of four of its members, Dr. George A. M. Simpson, of Highgate, Dr. R. W. Falconer, of Bath, Dr. T. E. Maclean, and Dr. H. H. Cockerell. Four members have resigned.

The year opened with a balance at the bankers of £131,

and after all liabilities have been met the balance that remains amounts to £138 12*s.* 5*d.* The sum invested in Consols remains as before, £500.

The volume of 'Transactions' just issued contains forty-seven communications, which do not fall behind those of previous volumes in interest and importance. An especial feature of the present volume is the Report of the Committee on Excision of the Hip-joint, which consists of a most valuable analysis of the results of treatment in some hundreds of cases of hip disease. The volume contains besides, eight plates, of which four are coloured, and seven woodcuts.

The Council has felt from time to time that members were not sufficiently well acquainted with the rules respecting cases and papers brought before the Society, and the conditions required to be observed by the readers. In the beginning of this year the regulations defining these conditions were drawn up in a separate form for distribution by the Secretaries to such members as proposed communicating cases to the Society. It is hoped that the business of the meetings will be thereby facilitated. The Council have also drawn up a rule, which will be proposed to the Society for its adoption, by which it will be definitely laid down that all papers that have been read before the Society shall become its exclusive property, and shall not be published elsewhere than in the 'Transactions' without the Society's consent.

Only two sub-committees have been appointed during the past year, one on a case of cross-legged progression, the report of which has been presented and is printed in the 'Transactions;' and one on a case of chromidrosis only recently exhibited. The Committees on Incubation of Diseases and on Hyperpyrexia hope soon to be able to send in reports.

CLINICAL SOCIETY OF LONDON.—BALANCE SHEET, 1880–81.

		£	s.	d.			£	s.	d.
1880	To balance from last account . . .	131	14	7	1881	By delivery of Vol. XIII of 'Transactions' .	4	10	0
	„ Arrears of subscriptions 1879–80 . .	1	1	0		„ Printing List of Members . . .	1	10	0
	„ 255 Subscriptions for 1880–81 . .	267	15	0		„ Reporting Address of President . .	6	6	0
	„ 14 Admission fees of resident members .	29	8	0		„ Cost of printing and binding Vol. XIV of 'Transactions'	162	2	0
	„ 1 Admission fee of non-resident member .	2	2	0		„ Cost of illustrating ditto . . .	43	4	6
	„ 2 Composite fees for 'Transactions' .	6	6	0		„ „ delivery ditto	4	3	0
	„ Sale of 'Transactions' by Society . .	3	3	0		„ „ 50 Lists of Members . . .	1	10	0
	„ „ „ by Messrs. Longman	28	6	6		„ Payment to Royal Medical and Chirurgical Society for use of rooms . .	47	5	0
	„ Dividends on £500 Consols . . .	14	12	7		„ Refreshments and attendants at meetings	31	10	0
						„ Payment to R. Coldrey	7	10	0
						„ Printing and stationery	5	15	0
						„ Mr. Wheatley for secretarial work . .	8	8	0
						„ „ „ collection of subscriptions	10	17	6
						„ „ „ petty cash and postage	4	14	4
						„ Cost of advertising, and Messrs. Longmans' commission on sale of 'Transactions'	6	10	11
						„ Balance at Society's bankers . . .	138	12	5
		£484	8	8			£484	8	8

Amount of Stock standing in the names of the Trustees, January 1, 1882 . £500 3 per cent. Consols.

CHRISTOPHER HEATH, *Treasurer.*

Audited and found correct { A. PEARCE GOULD, W. J. WALSHAM, } *Auditors.*

J. WARRINGTON HAWARD, *Hon. Sec.*

COMMUNICATIONS.

I.—*Traumatic Rupture of an Ovarian Cyst: Peritonitis: Recovery.* By ALFRED WILTSHIRE, M.D. *Read October* 14, 1881.

MRS. M., æt. 28, widow of an officer. No children. Had one miscarriage in first year of marriage from fall downstairs at the fourth month.

Catamenia began at 12, and were always regular monthly to the day; *i.e.* every lunar month, or 28 days.

In the year 1876 Mrs. M. consulted Dr. Oldham for pain in the lower part of the abdomen, and he then discovered something abnormal.

Dr. Oldham has kindly informed me that this was an ovarian cyst, with some solid material on the left side.

From this time until the spring of 1879 the abdomen gradually enlarged.

Mrs. M. then had typhoid fever severely in Dublin, being ill about six weeks.

On becoming convalescent she found that her abdomen had much enlarged, and Dr. Kidd, of Dublin, stated that the increase was due to the rapid growth of the ovarian tumour. In May, 1879, three weeks after leaving her sick room, Mrs. M. came to London to consult Dr. Oldham and myself with reference to her tumour. On leaving Dublin she was so weak as to be unable to walk, and had to be carried on board the steamer.

As soon as she was able, after her arrival in London, Mrs. M. called on Dr. Oldham, and it was shortly after leaving his house, and before seeing me, that the following curious accident befell her.

Mrs. M. was in a hansom cab with her maid, and while standing up to speak to the driver through the trap in the roof

of the cab the horse fell, and Mrs. M. was thrown violently against the sharp corner of the open door, the iron-capped point striking her abdomen in the region of the left hypogastrium.

She became extremely faint, and felt as if the whole of the interior of the body and chest were flooded with hot fluid: she thought, in fact, that her bladder had burst, and, oddly enough, did not at that time think of her tumour. She was carried into a surgery, where some restorative was given, and thence to her hotel, where Mr. Skelding, the hotel surgeon, was sent for; and afterwards, at the request of the patient, I also was sent for, and met Mr. Skelding early in the afternoon, some two hours after the accident.

The condition of the patient on my arrival was one of extreme collapse and gravity. The pulse was thready, the breath cold, the countenance wore a Hippocratic expression—pale, pinched, leaden, and sunken; considerable pain in the abdomen was complained of, and there were cold sweats.

The patient lay on her back and left side, with her legs drawn up, and this position she was compelled to maintain during several days.

Anything like complete examination of the abdomen was impossible, owing to the distress occasioned by the least movement; but it was not difficult to determine that there was marked flattening and broadening of the abdomen, with a quantity of fluid free in the peritoneal cavity, and an irregularly-shaped solid mass to the left. The patient informed me that she had an ovarian tumour which she feared had burst from the blow. She was extremely alarmed and apprehensive.

There was retention of urine, which was relieved from time to time by the catheter.

Two hours after the accident a flow of blood occurred per vaginam—a metrostaxis—which lasted nearly a week. The flow did not correspond with the proper epoch, and clearly was not menstrual, but rather a metrostaxis, doubtless excited by shock. It was never large in amount, and was not accompanied by any other flux.

After a few days diarrhœa ensued, the motions being described as peculiar, "like greenish matter."

The temperature was high for many days, exceeding on some occasions 104° F.

The tongue became dry, furred, and then glazed and red. There were profuse sweats.

Although the patient had come to London with the inten-

tion of seeing me I had not had the satisfaction of seeing her before the accident: I merely knew generally that she was supposed to suffer from an ovarian tumour.

Dr. Oldham was unfortunately out of town, and we were therefore deprived of the benefit of his most valuable counsel and knowledge until the fourth day after the accident. The responsibility therefore devolved chiefly upon myself.

In the presence of so grave an accident the question of treatment became a matter of anxious consideration.

Two courses suggested themselves, first, the expectant, and secondly, the operative. The reasons in favour of the former seemed, on the whole, the most weighty and happily we adopted it.

In carrying out the expectant plan reliance was placed chiefly upon the well-known valuable properties of opium in peritonitis, a severe attack of which seemed inevitable. Its anodyne properties and its power of checking peristalsis were trusted to conduct the patient through the critical stage; and our confidence was fully justified.

The patient was grateful for the relief the opium afforded; and to this day attributes her recovery, in a large measure, to its use. One grain doses were given every few hours.

In addition hot poultices were applied to the abdomen; medicines were given to relieve sickness; and such restoratives, food, and stimulants, as could be retained were administered—the latter sparingly.

Dr. Swan, of Dublin, came over to see the patient and joined our consultation on the second day; and both he and Dr. Oldham, who met us on the fourth day, approved of the course we had pursued.

The time for the other alternative, namely operation—that is, primary operation—had by this time gone by; and, happily, was no longer likely to be necessary.

It was, however, suggested by myself when I first saw the patient as a measure which, in certain eventualities, might possibly be demanded; but I decided against it, and in favour of waiting, chiefly on the ground that, so far as I could judge in the midst of so much collapse and prostration, there was not sufficient evidence of the existence of serious internal hæmorrhage. Had there been I confess I think it might have become our duty to have cautiously weighed the propriety of resorting to the radical operation: that is, abdominal section and ovariotomy; but, fortunately, the patient rallied sufficiently to show that no dangerous hæmorrhage could be going on internally; and we

were therefore justified in electing, and pursuing, an expectant course.

The patient had a severe and distressing illness, but bore up courageously throughout, and, after many weeks, was able to return to Dublin, though in a very emaciated condition.

The fluid effused into the peritoneal cavity underwent gradual, but ultimately fairly complete absorption; leaving behind a firm mass in the left hypogastrium.

I could never satisfy myself that the motions consisted either partially or wholly of the cyst contents; and, judging from the progress of the case, I should say that no great amount—I doubt if any—escaped per anum.

I need scarcely say that in a patient who had only just convalesced from typhoid fever rupture of the bowel was not altogether an improbable occurrence in the presence of an accident so formidable as that which had befallen our patient; but, except for the peculiar aspect of some of the motions, there were no other symptoms corroborative of intestinal rupture.

As in most similar cases there was considerable diuresis, and catheterism was sometimes in request.

Some three weeks after the accident the patient passed with great pain a number of large uric acid crystals from the bladder.

A year afterwards, viz. in June, 1880, I carefully examined Mrs. M., and found her looking remarkably well, stout, and rosy. I have also seen her repeatedly in the present year and she still (August, 1881) maintains her health. She is somewhat subject to globus hystericus, and constipated bowels. Micturition is frequent, and there is occasionally some bearing down. The catamenia are regular and not too free.

At the last examination of the abdomen scarcely a trace of the tumour was to be felt: there was only a little supra-pubic fulness, inclining to the left.

Vaginal examination showed that the uterus, normal in size, lay over somewhat to the right side; behind it, and to left there was too great fulness, as of firm tissue, which pressed the organ on the bladder. It seemed, in fact, as if the remains of the cyst and pedicle, to nearly the size of a duck's egg, were glued to the posterior and left of the uterus in Douglas's pouch. There was also a slight elongated band, running from the left of the body of the uterus towards the hollow of the left iliac bone.

There are no apparent signs of fresh growth up to the present time, and this is a point of much prognostic import-

ance in reference to the recent investigations into the infectiveness of certain forms of ovarian growths.

In fact it becomes a question of the utmost moment to the patient—whether she may consider herself cured of her tumour; or whether, on the other hand, there is a possibility, or probability, of a recurrence of the growth.

This contingency becomes, in view of offers of marriage, a practical and important one. In replying to it it seems incumbent upon one to weigh very carefully the evidence afforded by recent pathological investigations into the infectivity of certain forms of ovarian growth, for clinical evidence is not abundantly forthcoming. What little there is of the latter is insufficient to sway opinion decidedly either way; of the two it inclines rather in the direction of recurrence. Thus, two cases of traumatic rupture of ovarian cysts recorded by Bright in his excellent Memoirs (Sydenham Society) both ended fatally, the one within two years, and the other within three years of the rupture. In both the disease had existed for several years ("five years" and "many years") before rupture.

Dr. Barnes, in his admirable work, relates a case of bursting from the concussion caused by the giving way of the machinery of a lift. In this instance recovery took place after the usual diuresis. He refers to specimens in Guy's and in St. Bartholomew's Museums illustrating cure after rupture. His remarks on the subject of rupture and perforation are instructive and judicious.

Mr. Wells relates a curious case which he saw with Mr. Fox (*Dis. of Ovaries*, p. 272):

The patient while dancing in 1860 had the cyst burst internally, but recovered after profuse diuresis. She was tapped by Mr. Wells in 1865 of thirty-two pints of clear fluid like water, and in 1867, while getting into an omnibus, she fell and struck the abdomen violently. Again she had profuse diuresis, but remained well for some years afterwards.

Nepveu, in his essay on 'Rupture of Ovarian Cysts' (*Annales de Gynecologie*, tome iv, p. 14, 1875), has collected 127 cases in which the rupture, variously caused, took place into the peritoneal cavity, and of these half (63) died. Of the other half (64) he says that the cure was more or less complete, but that in 21 it was followed by reappearance of the cyst, some having a second, and one even a third rupture. Two died of peritonitis after the second rupture. The cure was definite and complete in 43 cases. Most of the patients

attained cure only after encountering grave complications, as peritonitis.

The conclusions arrived at by Gallez (*Histoire des Kystes de l'Ovaire,* Bruxelles, 1873), dealing mostly with the same cases, are mainly in accord with those of Nepveu.

But in these cases no adequate discrimination is made between ruptures attributable to the violence of the traumatism on the one hand, and to predisposing changes in the cyst walls on the other.

In the case I have brought forward the blow was extremely severe; violent enough, in fact, to have ruptured sound tissues, and there is no evidence of predisposing change in the cyst wall.

In the bulk of the cases of rupture from all causes previous change in the cyst wall appears probable seeing how slight the determining accidents frequently were, *e.g.* coughing, sneezing, stooping, vomiting, a slight slip, palpation, dancing, &c.

I have met with several such cases, two, at least, fatal, one occurring during labour. These predisposing changes are various, and may sometimes repay accurate appreciation. Thus, in cases of rotation of the cyst with twisting of the pedicle, bursting, with enormous escape of blood, may take place unless timely aid be rendered, as in a case of my own (*Path Trans.*, vol. xix, 1868).

Inflammatory and other degenerative changes may favour rupture, as also may proliferation leading to perforation in certain kinds of ovarian growths. In such cases rupture is easily provoked by even a slight accident, as a blow, kick, or fall.

Gallez says (p. 134) that the ancients counselled the cure of these cysts by smashing the tumour with a mallet.

But in many of these cases rupture is either spontaneous or is provoked by very slight traumatism, differing, therefore, from the case of Mrs. M. in respect of causation.

Peaselee regards rupture, however arising, as somewhat dangerous, and especially if the tumour be polycystic, the contents of such cysts being more irritating than those of oligocysts; besides, he asserts that polycysts are far more liable to spontaneous rupture than oligocysts (p. 75).

In discussing the present case it should be borne in mind that the observations apply mainly to examples of traumatic rupture in which the rupture was attributable rather to the amount and character of the violence than to any predisposing

lesion on the part of the cyst. Such cases are not common, but they raise two important questions: first, in reference to treatment; and secondly, as regards prognosis. It is scarcely possible, and it is certainly undesirable, to dissociate these questions, for, as will appear, they have intimate relations.

In the first place we have to consider whether surgical interference is demanded, or whether medical treatment alone will suffice. As guiding and influencing our conclusions we should seek to know, *first,* whether there is evidence of threatening internal hæmorrhage, in which case, grave as the condition may be, it seems that we have no alternative but to interfere promptly in the hope that we may rescue our patient from impending death.

Here one of the gravest problems of surgical intervention is raised, as it also likewise is in some cases of ruptured tubal gestation, bursting of varices of the broad ligament, &c. It is a question of urgent surgery, and one upon which especially I am desirous of eliciting the opinion of this Society.

It is not easy in the earlier hours to discriminate satisfactorily between the collapse due to the shock of the accident and that attributable to internal hæmorrhage, but when we find progressive exhaustion, with cold breath, gasping, jactitation, and rapidly failing pulse, then we may justifiably infer the latter.

In the presence of unequivocal evidence of progressive internal hæmorrhage, with the almost inevitably fatal issue impending, if not close at hand, we can scarcely be justified in withholding the only means which promise safety. Otherwise we have the pain of helplessly witnessing the unhindered approach of death, hastening with unequal but relentless steps.

I am well aware that skilled help is not always speedily available for such accidents, but my own limited experience encourages the hope that it may be more often attainable than is generally thought. If the principle of prompt surgical intervention in suitable cases meet with your approval then another great step in abdominal surgery will be gained, and I have no fear but that average diagnostic acumen will prove equal to the detection of many instances in which this grave interference will be justifiable.

The remarks of Mr. Spencer Wells on urgent operations, and elsewhere in his valuable work on *Ovarian Disease* (p. 264), may be indicated as confirmatory of the view that prompt operation is sometimes demanded; and, as he says, "In any such case ovariotomy must be compared with trephining,

tracheotomy, herniotomy, or the ligature of some large artery in a case of wound or burst aneurism, or primary amputation of a limb in compound fracture."

The second matter which has an important bearing on the question of primary operation concerns the nature of the cyst. The chances of recovery without operation in a case of burst dermoid cyst would probably be small indeed. They might be greater in a multilocular growth, but even then it may be a question whether, in some instances, the radical cure had better not be attempted. Should a suspicion of suppuration exist then it would seem incumbent upon the surgeon to interfere; and so, in like manner, it appears to me, would it be in the presence of the strong probability of infective growths.

In the case of a twisted pedicle, with bursting of the rotated cyst, operation would seem to be imperatively indicated; and the symptoms are generally unambiguous.

The foregoing considerations appear to suggest themselves from the surgical standpoint. They apply also, as has been implied, to other grave intra-peritoneal accidents as well as the traumatic rupture of ovarian cysts, and involve a principle of the highest importance. The splendid achievements of abdominal surgery place it in the front rank of science, beneficent life-saving science. Its triumphs are not yet complete: there remain not only the subject so imperfectly and inadequately brought before your notice to-night, and those ancillary thereto, but also the propriety of operation in mechanical obstruction of the bowel, ruptured uterus, rupture of the spleen, kidney, &c.

The immense advances that have been made in abdominal surgery in recent years emboldens one in the hope that it has still undeveloped resources available for the relief of troubles that have hitherto been, if not the opprobia, at least amongst the difficulties of our art.

I do not desire here to touch upon the vexed question of methods of surgical treatment, whether antiseptic or other: it is sufficient to point out the enormous gains that have accrued to our Art through the department of abdominal surgery by different operators and by various methods.

Unexpected success has attended the judicious, though bold, operations of discreet and capable men; and to some of our own countrymen (*e.g.* Wells and Keith) may justly be allotted the foremost rank in the illustrious band.

There are, I humbly submit, triumphs still in store. It should ever be remembered in this connection that the practice

for which I would respectfully bespeak your attention is applicable only in cases of a desperate character; that it is often the only remedy that can avert imminent death; and that it is a remedy promising complete relief where it succeeds: the cure being permanent and not merely palliative.

Guarded by considerations such as have been outlined in these remarks, and restricted to appropriate cases, there seems to be a field, legitimate though small, for the practice in question; and should but one life be saved by means of it, and none distinctly sacrificed, its advocacy will be amply rewarded.

My friend Mr. Jessop, of Leeds, narrowly escaped the privilege of attaining the consummation of my wishes in this respect; for shortly after some conversation with me upon this and allied subjects, he wrote to me to say that he had seen a case of ruptured tubal gestation in consultation where evidently the patient was sinking from internal hæmorrhage, and where his entreaty to be allowed to do abdominal section was overruled. A post-mortem examination proved the accuracy of the diagnosis and the appropriateness of the remedy suggested by Mr. Jessop. I have also several times urged this upon the attention of a sister society when specimens of burst tubal gestation have been shown, and I would respectfully invite your attention to it to-night.

I have not adverted to the propriety of tapping after rupture of ovarian cysts, because I deem it not only an imperfect method of treatment, but one that involves the risk of introducing an additional element of risk from possible septicity; while it is entirely inadequate for the arrest of hæmorrhage or more radical treatment.

The expectant, or medical, plan of treatment resolves itself chiefly into the management of a severe case of peritonitis. Opium becomes our sheet-anchor, and usually well repays our reliance upon it. At the outset full doses are generally called for—a grain every four or six hours, but as soon as acute distress is assuaged smaller doses suffice, and the least possible amount should alone be employed.

Poultices, catheterism, aperients, enemata, quinine, salines, &c., may be required.

The question of *secondary* operation in rupture of ovarian cysts belongs rather to the domain of ordinary ovariotomy.

Most operators of experience have met with cases of burst cyst; and I believe that a fair meed of success has attended such ovariotomies.

As I was able to show many years ago, the presence of perito-

nitis is not always a bar to operation; on the contrary, it may be the chief indication of the necessity for operation, being itself due to acute cystic changes, and subsiding only on their removal.

If this principle be accepted—and I believe it now is—then attempts at radical cure may justifiably be made in appropriate cases even in the presence of peritonitis.

It is conceivable that there are cases in which the removal of offending material—decomposing, irritant, purulent, &c.—from the peritoneal cavity and its antiseptic cleansing may be the only means of treatment compatible with recovery. Here the fear of peritonitis should not baulk us of our purpose.

Of course were the probable nature of the cyst determined beforehand, we should have an important guide to treatment, *e.g.* the grounds for prompt operation would be materially strengthened had we reasonable warrant for suspecting it to be of the infective or dermoid variety, or that it contained pus. Unfortunately such knowledge is rarely available.

II.—*A Case of Large Odontoma removed from the Lower Jaw.* By Christopher Heath. *Read October* 14, 1881.

THE following is a report of one of the rare examples of odontoma or tooth-tumour, described by Broca as *odontome odonto-plastique,* and depending upon some modification of the germ of the tooth before the formation of the cap of dentine. There are, I believe, but eight cases of the kind on record, and these, like my own, all occurred in the lower jaw. The first occurred in 1809 to Mons. Oudet; the second occurred in the practice of Sir Wm. Fergusson, and the preparation was figured in Mr. Tomes' work on *Dental Surgery,* and is copied in my work on the Jaws. The third occurred to M. Forget, and is figured in his work and my own; the fourth was presented to the Museum of the Dental Hospital by Mr. W. A. Harrison; and the fifth is figured in Heider and Wedl's *Atlas.* The sixth case occurred to Mr. Annandale, in a young woman, æt. 17, from whose lower jaw a mass closely resembling that in my own case was dislodged through the mouth. A section showed that a cap of enamel covered a mass of dentine, which again enclosed a mass of osteo-dentine. In this instance the

patient had never had any molar teeth. (*Edinburgh Med. J.*, Jan., 1873.) The seventh occurred in the practice of Dr. Goodwillie, of New York, and is mentioned by Agnew in his recently published work, and from the drawing given seems to have led to an extensive removal of the lower jaw.

All these specimens were met with in young adults, and only the first, the fifth, and the sixth were extracted from the jaw by the surgeon; in Mr. Harrison's case the mass coming away spontaneously, and in Mr. Tomes' and M. Forget's cases a considerable portion of the lower jaw being removed by such experienced surgeons as Sir Wm. Fergusson and M. Maisonneuve. In the case I am about to relate I must confess that I did not appreciate the nature of the tumour, and recommended removal of a portion of the jaw, and that it was only during a subsequent operation, undertaken for supposed necrosis, that the true nature of the case became apparent.

Miss C., æt. 18, the daughter of a dental surgeon, was brought to me in July, 1881, with a considerable swelling of the right side of the lower jaw, some of which was evidently inflammatory and partly the result of previous treatment; but there was, I thought, sufficient evidence of expansion of the jaw to warrant the opinion that a tumour was present, and I therefore recommended the removal of a portion of the jaw. Suppuration was then present, and with the finger a rough surface of apparently exposed bone could be felt; but this I regarded as the result of inflammatory action excited by the mechanical irritation of a periosteal growth, since partial necrosis of a jaw involved by cartilaginous or malignant growths, which has been irritated by exploratory measures, is in my experience by no means uncommon. The patient had the advantage of the opinion of Sir James Paget, who was not perfectly satisfied as to the existence of a tumour, and expressed a hope that the case might prove to be one of necrosis. Under these circumstances the operation was postponed.

On my return to town in September I found the patient improved in health and the swelling diminished by the subsidence of the inflammation, but a considerable enlargement of the lower jaw still present, with a sinus opening externally. From the mouth a white mass was visible, which, appearing among granulations, looked like necrosis, and I agreed that an attempt should be made to remove this, although I could not think it accounted for the expansion of the jaw.

On September 8, with the assistance of Dr. Snow, the patient was put under chloroform, and I proceeded to examine

the mouth with my finger. I soon found that the white mass was not bone but tooth, and yet was unable to make out its outline. I was unable to make any impression with a chisel or gouge, but at last with an elevator was able to lift out of its bed a mass of dental structures forming the odontoma exhibited (Plate I).

The mass measures 1½ inch antero-posteriorly, 1 inch transversely, and 1¼ inch from above downwards. It weighs 315 grains = ʒv gr. xv.

A section of the odontoma has been made, and it has been submitted to Mr. Charles Tomes, who has kindly furnished the following report:—

The whole surface of the odontoma is nodulated and roughened by stalactitic excrescences, and there is at no point any form recalling the characters of a tooth-crown.

The surface of a section presents a complicated marbled pattern, due to the admixture of several dental tissues, and it bears a general resemblance to that form of dentine known as "plici-dentine" or "labyrintho-dentine."

On the whole the mass is of tolerably uniform structure throughout, though there is an area of somewhat simpler structure in its upper and central portion, from which folds of dentine appear to radiate. So far as it goes, this would seem to point to the whole mass being the product of a single tooth germ rather than of several fused together, a matter which was left in some doubt by the absence of an accurate history of the case.

The excrescences of the surface, as well as the greater part of the interior, are made up of folds of dentine in which dentinal tubes are very abundant, and which surround flattened remnants of pulp chambers: between and intimately blended with this comparatively well-formed dentine is a more coarsely calcified material, containing numerous lacunæ and permeated by vascular channels; in fact, osteo-dentine.

Enamel is present upon some of the nodules of the surface, but it does not by any means form a complete investment: where present it dips in in folds, following the convolutions of the dentine; and it is to be met with in the very centre of the mass, though not very abundantly. It is nowhere well formed, being brownish and opaque.

This odontoma is the product of the formative dentine pulp of a tooth (or teeth ?) which has, in place of remaining simple, budded out innumerable processes on all sides, and finally has calcified; its enamel pulp has in parts followed the complexi-

DESCRIPTION OF PLATE I, TO ILLUSTRATE MR. HEATH'S CASE OF ODONTOMA.

Fig. 1. Outer surface of the odontoma.
Fig. 2. Section.
Fig. 3. Inner surface.

1.

2.

3.

G. S. Gibson, del. Mintern Bros, Chromo lith.

Mr. Heath's case of Odontoma.

ties of its surface, and in parts failed to do so; or, at all events, has failed to perpetuate itself by calcification.

A careful investigation of the patient's history yielded the following results :—She was a rickety child, and did not begin to walk till three years old. The first teeth came late, and decayed rapidly. There was nothing abnormal about them, but the parents now seem to think that there was something not quite right about the mouth, as the patient could not close it properly. Nothing abnormal was noticed about the second dentition, except that the teeth rapidly became carious. The father extracted several teeth, but did not notice any peculiarity about them. Some pain and uneasiness appear to have been felt by the patient last Christmas, and these increased until April, when the father extracted the right lower second bicuspid, there being then no tooth further back. No relief followed, and two molars were extracted from the upper jaw, and the jaws could then for the first time be properly closed. Another dentist was then consulted, who thought he detected an encysted tooth and tried to extract it with the elevator for nearly an hour. The result was an acute attack of periostitis, for which Dr. Snow was consulted at the beginning of May, when there was apparently exposure of the alveolus for about an inch, with general thickening and enlargement of the bone. Profuse suppuration ensued, and on firm pressure near the angle pus could be forced up from the interior of the bone. Under treatment the inflammation subsided, and the patient went to the seaside for a month, during which time a sinus formed in the middle of the right cheek. On her return to town Dr. Snow found the mucous membrane on each side of the exposed bony tissue greatly elevated and hypertrophied, forming polypoid masses. A month subsequently, after imprudent cold bathing, sudden increase of pain and swelling took place, and it was while in this condition that the patient was first brought to me.

Postscript.—June, 1882. A badly-developed molar, presumably the wisdom tooth, has appeared in the site of the odontoma.

III.—*A Case of Charcot's Joint Disease.* By C. R. B. Keetley. *Read October* 14, 1881.

THE case of Mr. John Pay illustrates most of the peculiarities of the joint diseases of locomotor ataxia. The joints

affected are multiple, partially symmetrical, and chiefly the larger joints. Each separate joint affection came on suddenly and was attended with great swelling, and not accompanied by any continuous or corresponding pain. The only one of these swellings which was opened gave exit to synovia, or at least to a synovia-like and rather viscid fluid. In the case of each joint also a rapid change in form took place, such as would be produced by wasting of one bone of the joint.

A peculiar crepitus or sort of crunching can be produced in each hip, especially the right (it is especially the two hips which are affected), and both lower limbs are now shortened; first one was shortened an inch and a half, and the other, when it was attacked, followed suit.

The affection of the great toe-joints was preceded immediately by the formation of an ulcer, which had its exciting origin in a precedent corn, and probably was itself a manifestation of the neurosis from which the patient suffers.

The ordinary signs of locomotor ataxy to be discovered are, inability to stand with the eyes shut and the heels together, loss of patellar tendon-reflex, diminution of the reaction of the iris in accommodation, and its loss so far as the effect of light goes. Sensation is blunted on the outer side of both feet, and also in front of the lower half of the left thigh, and perverted also in the left foot (he thought his heel was being touched when it was really his toe). There have been no gastric crises, but there have been what might, perhaps, be termed "intestinal crises," viz. often for a considerable period unaccountable attacks of diarrhœa coming on about once a fortnight. He is also subject to heartburn. And the attack in the left hip came on while he was actually being severely purged and griped by two pills and two draughts given to him experimentally by a chemist on the theory that he looked "bilious."

The patient's age is 34.

He says that he has never had syphilis or a chancre.

He was married ten years ago, and has several healthy-looking children.

Until last October (1880) he had suffered from nothing except pains in the muscles (which he calls rheumatism), occasional attacks of diarrhœa, and from time to time suppurations beneath the before-mentioned corn, which corn, he says, *spoilt his walk.* These symptoms had endured twelve years. There is still a small red scab in the position of the corn or ulcer.

In October, 1880, the right toe was attacked with great swelling, and one week afterwards the right hip and thigh swelled enormously. The swelling of the hip greatly subsided in about two months, the joint being left loose and grating but painless, the limb shortened, and the inguinal glands enlarged. The left hip was similarly attacked about six weeks ago. It has passed through the same stages as the right, and is now also shortened and loose, giving the crunching sound on manipulation. The swelling has already almost entirely subsided except in the groin.

The great trochanter has on each side ascended an inch or more, and, when either limb is rotated, moves through so small a circle that there can scarcely be a doubt but that the heads of both femora have been absorbed, at least partially.

But the patient can once again walk with crutches, and with an ataxic gait, modified by the joint injuries. A week after the last hip suddenly swelled he had for several hours a paroxysm of severe pains, described as "cutting," in the inner side of the left thigh, and "burning" in the knee of the same side. He has been taking five grains each of iodide of potassium and salicylate of soda, commencing a few days after this paroxysm, *i.e.* about a month ago. He feels better now, and is getting stronger. Another point to be noticed is a swelling of the adductors near the os pubis on the left side, which was first noticed after the above-mentioned paroxysm of pain, but had probably existed before. It soon subsided at the same time as the general swelling, but certain movements render these adductors singularly tense even now.

Is it justifiable to try nerve-stretching in this case? In the cases, now not few in number, in which nerves have been stretched for the lightning pains of tabes dorsalis, an improvement, sometimes almost total, has been observed in the general symptoms of inco-ordination. So, also, when nerves have been stretched for the pains of leprosy, the anæsthesia has disappeared from various parts of the body. There is thus reason to believe that nerve-stretching may be expected to sometimes act on the whole neurosis. And, though the patient before us suffers from a disease of bone-nutrition, yet that and the other changes in his body represent one single pathological condition, whatever its essential nature may be. If any one can tell me what has been the effects of nerve-stretching on the visible skin-changes in leprosy, I shall feel that I have further data to use in coming to a decision. True, leprosy may be due to an organism, and so, also, for the matter of that, may Charcot's

joint disease, and locomotor ataxy, and the syphilis so often associated with the ataxy and already alleged to be due to an organism. But that is of little consequence; for the mode of action of nerve-stretching is not known; and, whenever it is used to remedy inco-ordination, it is used empirically. Am I justified in using it empirically and experimentally in this case of Charcot's joint disease, with the hope of benefiting the nutrition of the bones? With strict antiseptic precautions the operation is neither very serious nor very painful.

IV.—*A Case of Strangulated Hernia (Littre's) or Partial Enterocele.* By C. T. Dent. *Read October* 28, 1881.

CASES, such as the one described in the present paper, in which a portion only of the intestine or a diverticulum of the gut constitutes the hernia are not, it would seem, of any extraordinary rarity; indeed, I should hardly have ventured to bring the subject before the notice of the Society, had it not been that this form of hernia is rarely even adverted to in ordinary surgical works*; yet the condition is characterised by peculiar and almost unequivocal symptoms, and when strangulated, is at least as grave as any other variety of rupture.

I have adopted the usual nomenclature and called it a 'Littre's Hernia;' the form of hernia was first minutely described by M. de Littre† in the year 1700. The condition, however, had been unmistakeably recognised some fifty years before M. de Littre wrote, by Fabricius Hildanus.‡ Now, de Littre founded his paper on the results of only three observations, and described but one form of the condition to which his name is attached.§ It has thus fallen out that the term 'Littre's Hernia' has acquired a rather loose significance. It affords another instance, if any were needed, of the disadvantage so often attaching to this complimentary form of medical nomenclature. The list of diseases is formidable

* Mr. Birkett describes and figures a case which occurred in his own practice in Holmes's 'System of Surgery,' 2nd ed., vol. iv, p. 673.

† 'Mémoires de l'Académie des Sciences,' A.D. 1700, p. 300.

‡ As pointed out by Riecke. "Ueber Darm-anhangs Brüche," Berlin, 1841, p. 7.

§ Riecke, op. cit., p. 7.

enough already, and though the action would seem almost irreverent, it might be well to make a clean sweep of such names as, 'Bright's disease,' 'Graves' and Basedow's disease,' 'Addison's and Alibert's keloid,' and the like.

William G., æt. 37, a cadaverous, phthisical subject, of intemperate habits, was admitted into St. George's Hospital in February, 1880. He stated that he had never been ruptured, so far as he knew. For some time previous to his admission he had been drinking freely. Two days previously he vomited several times after food; the day before admission, when getting up, he observed a tender swelling in the left groin and felt pain across the epigastric region. On admission a swelling the size of a small Tangerine orange was found in the left femoral region; no impulse on coughing; tongue moist, slightly coated; pulse 90. The next day he vomited again after taking some milk, and the bowels acted several times. I now saw the patient for the first time, and found him with a hard, dry, red tongue, and with that peculiar expression of helpless, distressed anxiety which I think is only seen in strangulated hernia. These symptoms, I was told, had come on rapidly during the last few hours; there had been diarrhœa, the tumour was movable, free from pain, and the skin over it slightly red. I decided to operate at once. While he was being put under ether he passed a large quantity of wind and fluid fæces. The parts overlying the hernial sac were matted together, and I had to proceed cautiously. The sac, on being exposed, was evidently thick and inflamed, and to the lower part of it a slightly enlarged gland was adherent. I found a very slight stricture at the neck of the sac, which I divided. With very slight pressure the hernia was reduced into the abdomen with a distinct gurgle. I was not completely satisfied about the condition of the parts, but the patient was so exceedingly reduced and weak, and as it seemed evident that the hernia proper had been reduced, I did not feel justified in the further dissection, which would have been necessary in order to open the sac. The wound was closed with one deep suture, passing close to the neck of the sac, and superficial sutures. For two days he went on well; the epigastric pain disappeared and the tongue became moist and clean, but persistent diarrhœa then set in, and he died on the sixth day.

Post-mortem.—Extensive disease was found in the lungs. The entire sac was readily pushed up under Poupart's ligament, and no doubt when at the operation the hernia was reduced, I did so displace the sac. The intestine, seven feet below the

pylorus, showed a dark, semi-gangrenous ring, which had evidently corresponded to the neck of the sac and had been constricted by it. A portion of the intestinal wall only, corresponding to the central more healthy part included in the ring, had formed the hernia (Plate II, fig. 2). This, therefore, was not an instance of the hernia described by de. Littre, but corresponds more to Riecke's 'partial enterocele' or 'diverticulum acquisitum.' The diverticulum, as invariably happens in these cases, sprang from the intestinal wall remote from the attachment of the mesentery. The gut was not actually perforated, but the slight traction necessary in removing it from the body sufficed to make two small perforations through the semi-gangrenous coats. Some four feet below this point there was evidence of intense enteritis over a considerable extent; this was wholly unconnected with the hernia, but the condition may have accounted for the diarrhœa. The sac, which was evidently a very old one, just admitted the little finger. The walls were rather indurated, fully a quarter of an inch in thickness, and inflamed and ulcerated at some points on the inner surface. The cavity was little more than an inch in length.

The symptoms in this case agreed with those described by de Littre as usually existing in these herniæ in the following particulars :—There was no intestinal obstruction, the canal not being wholly intercepted. Hiccough was absent, the vomiting was not excessive or persistent and not stercoraceous; the abdomen was not enlarged or distended.

The notable points of this case, to my mind, are as follows :

(1.) It occurred in a man. Out of twenty cases which I have been able to find, eighteen were in women, nearly all of whom had borne many children.

(2.) This form of hernia is always femoral; this was the case also in my patient, although the inguinal canal was particularly large and lax. The lower part of the ileum is nearly always involved, and a distinct pouch or sacculation of the bowel seen, but in this case the jejunum was affected and there was no such sacculation. No doubt, as has been pointed out by Meckel, a diverticulum of the ileum is apt to be formed in connection with the vitello-intestinal duct, and this process may become herniated, constituting yet another form of the hernia Littrica.

(3.) *Post-mortem.*—The affected portion of the gut was found lying at a considerable distance from the sac.

Had not my patient been so exhausted at the operation I

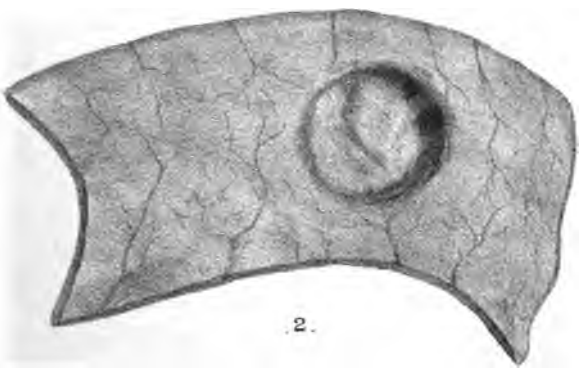
DESCRIPTION OF PLATE II.

FIG. 1 illustrates **Dr. Mahomed's Case of Myxœdema.** See p. 98.

FIG. 2 illustrates **Mr. Dent's Case of Partial Enterocele.**

The drawing represents the post-mortem appearances of the portion of jejunum involved in the hernia. The dark ring shows the part of the gut constricted at the neck of the sac.

1.



2.

R. Mintern. lith.

Mintern Bros. imp.

should have removed as much as possible of the thickened, inflamed, and ulcerated sac, and attempted, by passing deep sutures close to the neck and bringing a considerable portion of the exposed peritoneal surfaces into contact, to ensure obliteration of the sac. I do not think that the advice which has been given, to sew up the whole of the sac with catgut,* after it has been opened in herniotomy, is good. It appears to me that such a proceeding would be liable to bring about the very danger it is intended to avoid, by preventing any effusions or pus originating within an inflamed or ulcerated sac from escaping externally. It appears to me much better to close, at the time of operation, the neck of the sac as firmly as may be, and to allow any effusion or pus to escape externally by means of a drainage tube.

V.—*Double Hæmorrhagic Pleurisy: Degeneration of Cells with formation of Cholesterine: subsequent Empyema on Right side, operation and recovery; followed by Empyema on Left side, operation, Septicæmia and death.* By THOMAS CHURTON, M.D. *Read October* 28, 1881.

J. T., æt. 38, of good build and healthy family, was admitted into the Leeds Infirmary on June 15, 1880. He had already been under my care at the Public Dispensary for nearly three weeks, and had at first complained of loss of appetite, wasting to the extent of 20 pounds in twelve months, occasional vomiting, pain in the right side and between the shoulders, and a recent slight cough with some expectoration. But these complaints were made only in answer to questions; spontaneously he merely said that he had not been well for some time, and wished me to countersign a recommendation he had obtained for a hospital at some health resort. He looked rather pallid and subdued, and though he did not then complain or seem conscious of dyspnœa, I observed that his speech received a somewhat greater than usual check during inspiration, which was slightly abbreviated and constrained.

Examining the chest, I found *both* axillary regions very

* See *Lancet* for February 19, 1881.

dull; the respiratory sounds were very faint and there was absence of fremitus over the dull areas; these areas were of irregular outline and did not extend far towards either apex, sternum, or spine. Under treatment this condition did not alter; on the day before his admission to the Infirmary, therefore, his left chest was explored, and a brown greasy fluid was withdrawn. It was found to contain red blood-cells, frayed at their edges, and plates of cholesterine in great abundance, in a fluid plasma.

He now gave the following account of himself:—He had been a hardworking master shoemaker in a large village; he was married; his wife had had eight children, of whom six were alive; he had been always temperate. From the age of 18 to 20 years he had a cough with some general debility, of which he was at length cured by residence at Ilkley, and for ten years remained strong and well, and able to work very hard. Four years ago he injured his left hand, and this injury was followed in three weeks by an inflamed axillary gland. An abscess formed and spread beneath the fascia in all directions, and to a great extent, without bursting. After five weeks of intense pain the abscess was incised in the axilla; half a pint of pus escaped at once, a little flowed daily for 6 weeks, and then a large quantity escaped suddenly, and a mass of slough the size of three fingers was afterwards drawn out of the wound which had greatly enlarged. The abscess continued to discharge for six months, and at last healed. He then resumed work, though for many months using the right arm only, but had always since that time been weaker than before. For the last two years he had been positively ailing and losing flesh; he had also been conscious of shortness of breath on exertion, though not at all when in bed or at rest. He had then, however, no hæmoptysis, no cough, nor much, if any, pain in the chest. His face was now slightly waxy in colour.

In the *Hospital Reports* for 1880 the patient is thus described by the house-physician, Dr. Barrs:—"A sallow, unhealthy-looking man, not wasted but flabby. Tongue large, indented, and coated with a yellowish fur. Teeth irregular and many missing. Thorax a little rounded in front, but otherwise generally fairly formed. There is obvious wasting of the left pectoral muscle. (The left arm was fixed, he says, for 18 months after the abscess above described.) There is a scar of an incision in axilla in the third interspace. The wasting of the pectoral muscle gives rise to some apparent flattening

of the left chest [it will be presently seen that the right chest contained much more fluid than the left]. Respirations (in bed) 18; temperature normal." It remained normal for the next 12 months.

On June 18 the left chest was a second time explored, but without result. The right axilla was then punctured in the fifth space, and nothing resulting, in the fourth space, when 2 ounces of a fluid rich in cholesterine but darker and more bloody than that formerly drawn from the left side were obtained. A fortnight later 4½ ounces more were drawn from the same side. None could be got from the left side, and as the patient had greatly improved in general health he left the hospital. His weight was 9 st. 9¼ lbs. On August 10 he was re-admitted; 16 ounces of fluid were withdrawn from the fourth space in the right side. In November 12 ounces were taken from the right, and one ounce (not nearly so dark in colour) was obtained from the left side. In December he was again aspirated on the right side. The operation and the short stay in hospital always relieved the shortness of breath and the general weakness. The later operations yielded fluid darker than the first.

On March 3, 1881, 480 c.c. (18 ounces) were removed by aspiration from the right side, and it was noted that "the fluid was of the same character as before, and had a distinct blood sediment." He again improved, and left the hospital. On May 4 he was readmitted, and aspirated for the sixth time, and I now intended to keep him in the infirmary until the fluid should be entirely got rid of either by operation or otherwise. Up to this time he had walked about, could do light work, and seemed not at all distressed or even ill. Unfortunately he became involved in a quarrel with a nurse, and while in a nervous and agitated state drank a large draught of cold water, which caused a chilly sensation throughout his whole body. Next day he was feverish, his temperature rose, and on exploration of the right side two or three days afterwards it was found that the fluid, though still containing cholesterine in great abundance, was distinctly purulent. He became rather delirious, accused the nurse of trying to poison him, &c. On June 23, 30 ounces of the fluid thus altered were removed, but the lung did not expand. In nine days (July 2) 40 ounces were drawn off; and in seven days more (on July 10), though the lung seemed unable to expand, yet, finding that the fluid reaccumulated quickly, that the temperature was rising (evening, 103°), and that the man was

wasting and weakening, an incision was made for me by Mr. W. H. Brown, then house surgeon, in the right chest—seventh space, posterior axillary line. Thirty-eight ounces of fluid escaped; the temperature fell to 99° within three days, but then again rose to 103°. Upon examination I found that there had been a further accumulation of fluid upon the *left* side, and upon aspiration about 20 ounces of cholesterine-bearing fluid were obtained. This fluid was clear and of light colour. The temperature, however, did not even now fall; a sound passed into the right pleural cavity found a large empty space, the lung being evidently bound down; the pulse rate was 120, respiration 28; his poison delusion returned, and he insisted on leaving the hospital on July 19. His wound had been dressed antiseptically up to this time, and he wore a drainage-tube; but a few days after he went home the tube fell out, and he himself dressed the wound with some ointment, and of course without antiseptic precautions. Notwithstanding this, he greatly improved after the loss of the tube (as other patients occasionally do, seeming very intolerant of it), but the discharge continued. On September 10 I examined him at home. The right chest was resonant throughout; respiratory sounds were slightly audible in mid-axilla; both fremitus and resonance were discoverable. A probe passed through the now fistulous wound quickly impinged upon the lung. At the base posteriorly the respiratory sounds were feeble; there were no râles. On the left side the upper lobe was normal; the axillary region was still dull, and the dulness extended to within 3 inches of the spine. There was very little respiratory sound, the fremitus was altered, the resonance squeaky, and by means of a small aspirating needle I found some fluid (which is shown), but failed to draw off more than a drachm or two. His pulse-rate was over 100, respiration 24, temperature 99° (evening). A few drops of pus from the wound contained no cholesterine crystals. He was cheerful and gaining strength. He went to Bridlington Convalescent Home, where he stayed a month, and in that time gained six pounds in weight and otherwise improved very greatly. On his return he became worse, apparently from accumulation of pus in the right chest, but last night (October 27) he was up and walking about and was quite brisk and cheerful, though still a little short of breath. The dull area in left axilla had diminished almost to nothing; a needle passed in at the dullest spot near the seventh rib found nothing. This part of his left chest is very immobile during respiration. The right side has not altered much, the

respiratory sounds are, however, decidedly clearer; there are no râles; fremitus and resonance are distinct except near the wound. There is still a discharge of pus, 2 or 3 ounces daily. Pulse 120; respiration 27; temperature 102° (after examination and operation). The pus contains no cholesterine. Temperature this morning 102°. He felt pretty well, and has gone to Scarborough.

Fraenzel describes very nearly the kind of fluid met with in this case; he does not, however, mention cholesterine as occurring in it in a crystalline form. "An effusion varying from cherry red to brown and containing numerous red corpuscles, some intact, some more or less changed," and caused by, *inter alia*, "a fresh inflammation of an already organised exudative deposit from a former pleurisy." One need hardly go farther for a theory of the disease. The following propositions may be formulated:—

(1.) A chronic double pleurisy, of greater intensity on the right side, resulted in the formation of a circumscribed effusion on each side of the chest. The two years' history of dyspnœa sustains this proposition.

(2.) The new membrane lining the cysts thus formed was thick and as usual partly vascularised, and in consequence, probably, of the patient's altered state owing to former illness and prolonged suppuration, the abnormal condition of the pleural membrane persisted, and absorption of the effusion proceeded very slowly or not at all. That there was a thick false membrane on the right side seems probable from the fact that after aspiration the lung did not freely expand. And on the left side, though there was much less fluid, yet no breath sounds were for a long time audible anywhere in the axilla. Again, upon aspirating the left pleura in July, 1881, the needle appeared at length to reach the pulmonary layer when it became choked by a shred of membrane. This was found to be made up of small cells and cholesterine crystals in nearly equal quantity. The fluid thus drawn was much clearer than that previously taken; in fact, it had the colour of ordinary pleuritic fluid, but nevertheless it contained much cholesterine. This must have been either formed in some contents or in the lining membrane of the cyst, since there had not been time for cholesterine to crystallise in any fresh effusion. "Cholesterine does not crystallise in a fluid of less than six months' duration." (Mèhu, *Archives Générales de Médecine*, September, 1881, p. 277.) And cholesterine is a final product, according to Rindfleisch, of fatty degeneration occurring under conditions

such as were found in this case. "When the products of fatty degeneration are enclosed in a cavity whose walls are in a state of inflammatory irritation and consequently inclined rather for production than for absorbent activity, these products have to undergo a further series of changes. . . Finally an abundant deposit of cholesterine crystals occurs" (*Path. Anat.*, i). The colour of the fluid from the right side probably depends upon dissolved hæmatin. Its want of spontaneous coagulability accords with Gamgee's statement that in chronic pleurisy fibrin does not usually occur, and with Fraenzel's view that the red globules escape by diapedesis and not by common hæmorrhage. The great improvement which took place in the patient's condition during his stay at the seaside seems to oppose the idea that there is tuberculosis of the pleura, although Fraenzel states that double hæmorrhagic pleurisy is always tubercular in origin. Up to the time at which the empyema occurred, this patient had no rise of temperature, no marked emaciation, no anorexia, no cough, no sign of disease or disorder in any part except the pleuræ.

Sequel. Read May 26, 1881.

James T., whose case was reported to the Society in October last, has since died. At that time he was recovering from an empyema on the right side, and the left pleura seemed to contain no fluid, although dulness in the lower axillary region still remained, and the breath sounds were absent. It was not clear at that time what the meaning of these signs might be. But during the very time when the wound in the right chest was closing up and the lung was expanding, an empyema formed upon the opposite side, and this was found to contain cholesterine. The effusion seems to have been simple at first, for Dr. Hobson, medical officer of the Sea Bathing Infirmary at Scarborough, kindly wrote to me on November 21, 1881, as follows:—"I have explored the left chest and find no pus, but serous fluid only. Friction sound is audible over a considerable area. The old (right) empyema has remarkably improved, the cavity and discharge being much diminished." The temperature was high and he lost flesh still further. He came home on November 25.

On the 29th, 8 ounces of purulent fluid were aspirated from the left side. The temperature fell, but in two days began to rise to 100° in the evening and the wasting continued. I therefore, on December 7, advised him to have the

left chest incised. The wound in the right chest had been healed for some time; the fremitus and resonance over the whole of this side were perfect; there could be no doubt of the complete restoration of the function of this lung. There were, however, a few râles in the upper lobe, and he had some cough and expectoration. There was no apparent disorder of any other organ. The left chest was incised on December 8. Unfortunately a spray had not been provided; but as I have many times seen the chest opened without full antiseptic precautions, and without any ill result, I did not object to the operation being proceeded with. A considerable quantity of pus, containing cholesterine, escaped at once, but very little came afterwards through the tube. On the 11th "the discharge is scanty but offensive; he complains of pain in the wound which is rather ash-coloured; temperature 103° last evening." The tube was temporarily removed and poultices were applied to the chest; the discharge did not, however, increase, but he showed distinct signs of septicæmia;* and these were not diminished by repeated washings of the cavity with weak solution of boracic acid and of permanganate of potash alternately. The patient died rather suddenly on the sixth day after operation.

At the post mortem the cause of death became clear. The floor of the left pleura, the sac of the empyema, was covered by a layer of dirty-white mortar-like material composed of old cells and cholesterine intimately mixed. This layer was merely resting upon, it was not firmly adherent to, the pleura, and had apparently been deposited there long ago, such adhesion as it possessed being merely conferred upon it by stratification. The layer was accurately moulded into the bottom of the cavity, but was not of uniform thickness; the whole of it when removed from the chest could be held in the two hands. The rest of the pleura had the usual appearance of an empyema cavity; there was no fluid pus. The lung was perfectly healthy, except that there were a few small nodules in the apex; it was, of course, to a great extent compressed. Without doubt it was the admission of septic germs to the layer of dead cells which had caused septicæmia and death.

* The septic germs were undoubtedly introduced into the thorax by suction during inspiration; the air was heard to enter as the pus flowed out. Gauze and silk were applied to absorb further discharges. I do not remember whether previously to the incision the operator used any carbolic sponging; but it would not have been of any avail. It turned out that in addition to other disadvantages there was a quite unsuspected gaping drain-pipe under a disused sink in the room adjoining that in which the patient lay.

Exploration of the pleura by the finger at the time of the operation did not discover this layer of solid matter. The origin of the cholesterine also became clear; it was produced by the degenerating layer of cells deposited by former attacks of pleurisy, and not by the fatty degeneration of a "false membrane" of the ordinary kind. I can find no record of any case similar to this. Cholesterine has been found in cysts growing within the pleural sac, but it does not appear to have been found in visible quantity in fluid contained within the pleura itself. It having been proved that the cholesterine upon the left side was due to a deposit of blood-cells and leucocytes, it may be inferred that a similar deposit formerly existed upon the right side. No remains of such deposit were found at the post mortem, hence the condition described is a curable one. For the right lung was everywhere adherent to the wall of the chest, and except that there were a few small nodules in the upper part of the uppermost lobe, was everywhere healthy. There were no miliary tubercles whatever on the pleura of either side or in any other part. The depressing influence of Fraenzel's statement that double hæmorrhagic pleurisy is almost certainly of tubercular origin need not have been felt. In the anterior edge of the liver, occupying the notch, was a caseous mass as large as a marble; otherwise the organs were all quite healthy.

VI.—*On two cases of Malignant Stricture of the Œsophagus in which Gastrostomy was performed, with special reference to Œsophagostomy in narrowing of this tube.* By H. A. Reeves. *Read October* 28, 1881.

JULIA K., æt. 29, married, was admitted into the London Hospital on July 13 of this year. She had been an outpatient of mine for a short time, and I sent her into Mr. Rivington's wards. She stated that in September, 1880, she noticed that large pieces of solid food stuck in her throat, and this difficulty in swallowing gradually increased until she was unable to take any solid substance. She suffered occasional pain at the place obstructed, and placed her fingers over the thyroid and cricoid cartilages when asked to point it out. She complained of cough and frequent hawking up of mucus, and

at night much saliva ran away. She had lost much flesh, and was getting weaker and thinner daily. Her voice was feeble, although she said that she had never lost it nor experienced any difficulty in breathing. She never had any injury to the throat, and had never swallowed any irritant or corrosive liquid. Her mother stated that her daughter had always had rather a small swallow. There was no family history of malignant disease. While in hospital her symptoms varied from day to day; sometimes she was able to take bread and milk and light puddings, and at others could hardly swallow water, and even this caused pain and dyspnœa. My senior, Mr. Rivington, tried to pass bougies, and as these would not pass placed her under an anæsthetic, and even then a small elastic catheter could not be got in. I also tried on several occasions with and without an anæsthetic, but never got through the stricture. Mr. Rivington then asked Dr. Stephen Mackenzie to see the case, and shortly afterwards, his vacation time having come round, I was left in charge of the wards.

The patient getting steadily worse, and attempts at deglutition being immediately followed by severe spasms of breathing, I asked Dr. S. Mackenzie to examine the patient again, as I thought the œsophagus should be opened. The probability of tracheotomy at any moment was anticipated.

I did not see the patient with Dr. Mackenzie, but heard from the house surgeon that Dr. Mackenzie did not think the œsophagus could be opened below the stricture, but that gastrostomy should be done. Mr. J. Adams and Mr. MacCarthy, who examined the patient, were of the same view, the latter suggesting that there was a gland in the way, and that I should probably get into a mass of cancer, and that moreover the thoracic duct was near enough to be wounded.

I had always been strongly in favour of œsophagostomy, even if only as a preliminary exploration, but on examining the patient about an hour and a half before the operation she complained of tenderness about the seat of obstruction, and it felt to me thicker than it had ever done before. I attributed this to congestive swelling, or to the probable perforation of the tube and inflammation around it, and this fact, taken in conunction with the fact that Dr. Mackenzie, Mr. Adams, and Mr. MacCarthy continued against the operation of œsophagostomy, after explaining the *pros* and *cons* to the students, I deferred to the opinion of the majority, and performed gastrostomy with the oblique incision.

The stomach was easily found and stitched with numerous

sutures to the abdominal wall, but it was not opened. The patient retched a good deal after the operation, but said she felt better. She had only ice to suck, and seemed cheerful and did not complain of pain till about eighteen hours after the operation, when she looked pale and pinched. She died thirty hours after the operation.

I had great difficulty in getting leave to examine the body at all, and was, after prolonged persuasion, only allowed to proceed as if I were operating on the living. I reached healthy œsophagus without difficulty just below the cricoid cartilage. There was no gland enlarged. Nothing could be got through the stricture, either from above or below. The disease extended for about an inch upwards around the tube, and involved the termination of the pharynx. The incision in the abdominal walls had contracted into a narrow slit—this I noticed during life—and the peritoneal surface of the stomach was much congested, looking like mucous membrane. The stitches held well, and union had taken place between the peritoneal surfaces of the viscus and abdominal wall. The abdomen was very slightly distended, and although the patient complained of pain in the left lumbar and iliac regions, I think that exhaustion had as much to do with her death as peritonitis. The operation was done antiseptically.

My first case of gastrostomy was operated on at the London Hospital in the autumn of 1877. The subject was a man, æt. 63, who suffered from a cancerous stricture of the upper thoracic portion of the tube. After consultation gastrostomy was decided on, and although the man died about four days after the operation his death was not in any way due to the operation, but to pleurisy and pericarditis, which had evidently been prepared for prior to the operation, as fistulæ existed, communicating with the tube above and at the site of the growth. Particles of the ingesta had escaped through these and set up inflammation in the posterior mediastinum, which had, by contiguity, caused pleurisy with effusion and pericarditis. The stomach, which was opened at the time of operation, was firmly adherent to the abdominal walls, and there was not the least trace of peritonitis. The mode of death was such as would be expected from the cause. This was, I believe, the first case done by the oblique incision in this country.

I am responsible for my share of the error of judgment involved in the operation selected and performed in the first case related, and this I have neither the intention nor wish to shirk, but I think it my duty to record the case and to use

it as a text on which to propose a more satisfactory and, as it seems to me, a more rational plan of dealing with similar cases. In this instance I permitted myself to be over-ruled in deference to colleagues, most of whom were senior to me, but in any future similar case I should act quite differently, and I wish to bring out reasons which shall be sufficient to induce others to accept my views.

I may at once say that in strictures low down I regard gastrostomy as a perfectly legitimate operation, but in obstruction in the cervical or upper thoracic portion of the tube I am strongly of the opinion that œsophagostomy should be first attempted, and if it be found impossible or dangerous to get beyond the stricture gastrostomy may be performed.

My reasons are, first, because malignant strictures are commonest at the upper portion of the tube. The old view, which is supported by Nussbaum, considers the middle and lower portions as most frequently affected, but Dr. Morell Mackenzie states that of 100 cases forty-four were in the upper part of the tube. Many more observations are necessary to settle this point, but as far as my own observations go they certainly tend to confirm the latter statement, for of twenty-one cases of stricture of the œsophagus which had come under my notice and care during the past ten years in hospital and private practice eleven were in the cervical or upper thoracic part of the tube. Not long since I saw a case in consultation with Dr. R. T. Smith, of Haverstock Hill, and her history, taken with that of the first case recorded, helps to explain why stricture should be more common in the upper end of the tube. The patient, a lady of 64, said she had always had a small swallow, and as a child had to be most careful to cut everything up small and to masticate it well. Julia K.'s mother also said that her daughter had often experienced difficulty when a child in swallowing large mouthfuls, and in these cases there most probably existed a congenital narrowing, or a septum or valvular fold due to the imperfect coalescence and disappearance of the tissue, by means of which the mouth, pharynx, and œsophagus unite. I know it is stated by embryologists that this union takes place usually at the posterior pillar of the fauces, but there are deviations from this rule, and it may be that this abnormality of development is the primary cause of some of these cases of cancerous stricture high up. The septum sustains pressure and irritation for years, and this may end in the formation of epithelioma, scirrhus, or soft carcinoma.

Another anatomical reason has been given by John Hunter for the occurrence of malignant growths at the pharyngeal end of the tube, which he believed was the part most commonly affected. He thought that as the wide pharynx ends in the much narrower œsophagus opposite the cricoid cartilage, hard morsels of food will then cause greater irritation, and thus tend to produce carcinoma. Rokitansky found that the lower end of the pharynx and upper part of the thoracic portion of the œsophagus were most often affected, but Rindfleisch has seen it more often in the mid-thoracic part, and gives the following anatomical explanation:—"The left bronchus, as is well known, crosses the œsophagus in its middle third," and "every morsel of considerable size, in passing down the œsophagus, squeezes its anterior wall against the posterior wall of the unyielding bronchus."

Experiences differ in post-mortem examinations as in other things, but recent observations have shown that disease is more common in the upper part of the tube; and, further, Rindfleisch's explanation is not nearly adequate—from an anatomical point of view—to make it more probable that anatomical causes are more potent as etiological factors in the thorax than in the neck. In the neck the œsophagus has the harder cricoid cartilage in front of it and more of the spine behind it, as it is more in the mid-line, and, moreover, it is bound down by the strong cervical fascia. All these elements of resistance should be, as I believe they are, more potent as exciting causes of obstruction in the neck than in the chest.

In the second place, an exploratory incision in the neck is, as regards the patient, a comparatively small matter. There is no fear of inflammation or sloughing of the cellular tissue of the neck, as such an accident has not occurred in cases of œsophagostomy, and I have never seen it in any of the many cases in which I have non-antiseptically removed tumours or glands from the neck, and it ought to occur—if at all—in such operations, which are usually prolonged, and which often necessitate much stretching, laceration, and bruising of the tissues. In the incision for œsophagostomy no such interference with the tissues is necessary.

Thirdly, œsophagostomy being almost devoid of risk to the patient while gastrostomy is so fatal, it is in my opinion the surgeon's duty to make an exploratory examination, and then, if necessary—but not till then—to perform gastrostomy. The wound in the neck should be stitched up, and there is little fear that one will hear more of it.

I have been able to find records of seven cases of œsophagostomy, to these should be added about four other cases which had been done in Germany by Langenbeck and Kœnig. All did well as regards the operation; and the only English case is that done by Mr. Willett, 1867. Most of them were done for malignant disease, but a few were undertaken for simple stricture.

The records of gastrostomy compare—even with modern improved methods—most unfavorably with the results, both immediate and remote, of œsophagostomy. Petit gives forty-one cases up to 1879. Of these, thirty-six cases were operated on by the old plan, and thirty-three died, and the first success was in 1875 in the twenty-ninth case, which was the third case operated on by Mr. Sydney Jones. In 1876 Verneuil improved the plan of operating, and four recoveries out of six have resulted by this plan. Of the forty-one operations thirty-one were undertaken for cancer, eight for cicatricial narrowing, and two for syphilitic stricture. Thirty of the cancerous cases died, and one survived only a short time. If to these be added the two cases I have related and four others of which I know, there will be a total of forty-seven operations and forty-five deaths. I have not included the late Mr. Maunder's case because, although it was intended to be a gastrostomy, it really was a colotomy, the transverse colon having been opened, but I think it should be mentioned as showing another risk of opening the abdomen for gastrostomy. There have been of late one or two successes in this country, and the patients have lived for some months after the operation, and this has been due to the fact that the operations were undertaken before the patient was too weak to battle with its results, and also to improved anatomical data for the incisions by which to reach the stomach. As regards the advisability or not of opening the stomach at the time of operation or of leaving it for some hours or days to unite to the abdominal wall before doing so, the results of the operations so far seem to show that it matters little, for almost as many of the very few recoveries have taken place after the one plan of operating as after the other.

These results speak for themselves and offer a strong indictment against gastrostomy in œsophageal stricture, and for this reason and the others I have already given, I hope I shall induce surgeons to see that in cervical or high thoracic œsophageal stricture œsophagostomy is the proper, the safest, the more rational, and therefore the most surgical treatment.

I have consequently come to the following conclusions on

this subject, which I would submit to the Society as the basis of discussion.

1. That internal œsophagotomy being out of the question, and the stage for gradual dilatation being passed, and in consequence of the great mortality of gastrostomy, and also because of the more frequent occurrence of malignant stricture in the upper portion of the tube, œsophagostomy is by far the preferable operation.

2. That even in cases where the stricture is as low down as the manubrium sterni (its depth being rarely very great) œsophagostomy is indicated as a preliminary or exploratory operation, and if it be found that the little finger or sound cannot be got through the narrowing, gastrostomy may be performed.

3. That if it result that the opening in the œsophagus has been made below the stricture (as in most cases would be desired), the operation can be completed by stitching the mucous membrane to the wound edges, and the stricture may, if thought proper, be dilated through the opening at the time of operation or subsequently.

4. That if diseased œsophagus be reached, and no opening into it can be made through healthy walls, then it may be carefully perforated, either by the finger or the thermo-cautery.

5. Œsophagotomy has been many times done, and œsophagostomy several, and never have these operations caused any grave local or general symptoms, or—as operations—led to the death of the patient, whereas gastrostomy has proved most fatal.

6. The operation should be done on the left side of the neck, and a sound should, if possible, be passed, that of Vacca Berlinghieri being the best. The skin incision should be rather nearer the mid-line than that for ligature of the common carotid, and should extend from half an inch above the episternal notch to the level of the upper border of the thyroid cartilage. The surgeon should stand on the left of the patient looking obliquely down and across his or her body. A tube with a funnel-shaped end should be passed and tied in place, and nourishment administered as soon as the tendency to vomit caused by the anæsthetic has passed off. It is necessary to make the opening in the œsophageal walls with a sharpish stab, to prevent the loose mucous membrane being pushed before the knife. The edges of the wound may be stitched up, and care taken that no food gets into it.

7. The operation should be undertaken before the patient's strength is much exhausted, and even before obstruction is

complete, because, frequently, attempts to swallow produce spasmodic suffocative dyspnœa, as in the first case related.

8. In severe cases of simple fibrous or syphilitic stricture in the nuchal or upper thoracic portion of the tube, œsophagostomy is indicated, as then the operation might be made curative as well as palliative.

9. Internal œsophagotomy must be limited to an extremely small percentage of cases, and some think it not justifiable, and excision of the diseased part of the œsophagus is yet in its merest infancy, so that œsophagostomy is the best resource left us, and the operation, if performed with care, is not very difficult.

VII.—*Five Cases of Cancer of the Œsophagus, in four of which Gastrostomy was performed, considered in regard to the advisability of this Operation.* By C. H. Golding-Bird. *Read November* 11, 1881.

FOUR cases of cancer of the œsophagus in which I performed gastrostomy, and one in which the operation could not be completed, during the last year, will furnish some points in regard to the question of the advisability of the operation in cancerous œsophageal stricture, as well as to that of the utility of œsophagotomy in such cases.

Case 1 (Reported by Mr. Moorhouse).—Henry R., æt. 51, admitted into Guy's Hospital, under Mr. Golding-Bird, on December 16, 1880. Had had slight dysphagia for twelve months; had rejected all solid food since April, 1881, or nine months ago; he then took to liquid diet, which he has continued to the present time. For six weeks has kept but little of the liquid diet down, much being regurgitated.

Is very wasted, thin, and ill. Ordered to be fed with enemata, and some milk was administered with a tube through the mouth; the tube was not, however, through the stricture, so much of the milk returned.

Dec. 26.—Till yesterday he has much improved, and gained in weight; he then returned the enemata, and rather suddenly began to sink and the pulse to fail. At 2.30 gastrostomy was performed. Percussion gave no clue to the position of the stomach, so an incision was made parallel to and two inches

from the margin of the ribs. The liver only, however, was found, its edge being just within reach of the index-finger. A second and vertical incision was made in the semilunar line nearly as low as the umbilicus. The liver was now turned up, and the stomach attached to the parietes, but was not opened. Ordered enemata.

Dec. 27.—Much weaker, all but moribund, is getting cold. At 2 P.M. (*i.e.* twenty-four hours after operation) the stomach was opened, and milk and brandy injected, but he died, without rallying at all, at 6.30 P.M. Highest temperature was 102·6° at 4 P.M.

Post mortem.—Annular epitheliomatous stricture opposite the tracheal bifurcation, which was involved but not perforated. No secondary deposits. Œsophagus dilated above the stricture. No peritonitis.

CASE 2 (Reported by Mr. MOORHOUSE).—William P., æt. 66, admitted into Guy's Hospital, under Mr. Golding-Bird, on February 7, 1881. Had felt pain in the chest, followed by difficulty in swallowing, two months ago. He gave up all attempts at swallowing solids owing to the pain they caused; since then he has only taken liquids, which are only occasionally regurgitated.

Is thin and cachectic looking but general condition fairly good. Ordered a diet of milk, beef tea, and brandy, to be taken by the mouth.

Feb. 9.—Has taken his diet well, only a small part being regurgitated, and then with much clear fluid (? saliva). Regurgitation, at times, an hour after food. At 3 P.M. gastrostomy was performed by vertical incision at the outer edge of the rectus abdominis, over a spot indicated by percussion. The stomach was attached to the parietes, but not opened.

Ordered nutrient enemata every four hours, and a pint of milk by the mouth in the first twenty-four hours.

Feb. 14 (*i.e.* 5th day from operation).—The same diet having been continued the stomach was opened, and liquid food administered through a No. 10 catheter.

March 3.—Was discharged from hospital. There had been no untoward symptom; all food administered has been retained; the patient fed himself, and by means of a small Higgenson's syringe without valves, and used like Aveling's transfusion apparatus, was able to take pounded meat. There was no regurgitation of food through the wound and the dysphagia improved, but he was advised to feed by the artificial opening.

Three weeks after his discharge the food began to regurgitate, when the stomach was full, upon stooping, and this continued till his death in July, 1881. He died from bronchitis. No post-mortem was possible.

Case 3 (Reported by Mr. A. W. Clarke).—John F., æt. 60, admitted into Guy's Hospital, under Mr. Golding-Bird, on July 22, 1881. He had had dysphagia first, with pain in the chest, five months before admission, and for the last two months has had only liquid diet, most of which is regurgitated. He has employed food enemata.

Is very weak and ill, and though constantly sipping milk, but little of it remains down. He is in a starving condition. Ordered food enemata for four days.

July 26 (2 p.m.).—Gastrostomy performed by vertical incision (as in Case 2). The next day he retained only two enemata and became weaker, so at 8 a.m. on July 28 (*i.e.* forty-two hours from operation) the stomach was opened and food introduced. He never rallied, and died in twelve hours. The highest temperature after the operation was 100·8°.

Post mortem.—Annular epitheliomatous stricture of œsophagus just below cricoid cartilage, and involving anterior wall of œsophagus a little lower down. Secondary deposits in lungs and mediastinal glands. Trachea normal. Stomach full of food and partly adherent to parietes. Viscera generally showing senile change.

Case 4.—John C., æt. 44, admitted into Guy's Hospital, under Mr. Davies-Colley's care, on August 30, 1881. In this surgeon's absence Mr. Golding-Bird took charge of him.

First dysphagia four months before, and three months ago much dull aching mid-dorsal pain, when also, in consequence of impaction of food for some days, he took to a fluid diet; part of this is always regurgitated.

He is very sallow and emaciated, but with care he is able to swallow plenty of milk and beef tea, and is up and about the ward.

Sept. 9 (2 p.m.).—Gastrostomy performed by vertical incision. There was marked injection of the coats of the stomach, and some difficulty in getting it to the surface of the abdomen.

Sept. 12 (3 p.m., seventy-two hours).—Stomach opened and food administered. In doing so one stitch was accidentally cut. In the interval he has been fed with enemata and allowed milk and brandy by the mouth. General condition very good; getting stouter.

Sept. 14.—Became jaundiced and had bowel pain. The next day he was evidently not so well, and whilst being fed by the dresser had sharp abdominal pain; the catheter then was seen to have slipped into an opening between the stomach and parietes. Only one stitch had been removed, the rest were taken out by the dresser after feeding him to-day. He rapidly sank, and died at midnight. The highest temperature since the operation was 99·6°.

Post mortem.—Epitheliomatous stricture at level of tracheal bifurcation, and a second at three inches from the cardia. Two patches of cancer were in the posterior wall of the stomach near the pylorus, and the head of the pancreas was involved. The mesenteric and mediastinal glands were infiltrated. Liquid food in the peritoneal cavity and early peritonitis.

Case 5.—In which the operation could not be completed, was that of a gentleman, æt. 45, with six months' history of dysphagia, and three months' history of purely liquid diet. During this time also there had been occasional œsophageal hæmorrhages. The operation, though suggested long before, was only agreed to on September 20, 1881, in consequence of hæmorrhage and fetid discharge from the œsophagus. The operation had only been commenced under an anæsthetic as usual, when again sharp hæmorrhage with fetid discharge poured from the mouth, and both pulse and respiration stopped. The subcutaneous injection of brandy caused reaction, and the patient eventually survived three weeks, the latter part of the time being unable to retain enemata, and suffering severely from thirst. The stethoscope showed no evidence of any lung complication at the time of operation.

Case.	Age.	Dysphagia.	Liquids.	Growth in neck or chest.	Stomach opened after operation.	Died after stomach opened.
1	51	12 months	9 months	Chest	24 hours	4 hours
2	66	2 „	2 „	Chest	5 days	Lived 5 months
3	60	5 „	2 „	Neck	42 hours	12 hours
4	44	4 „	3 „	Chest (2)	3 days	72 „
5	45	6 „	3 „	Chest	*	*

The table gives an analysis of the cases just detailed, and illustrates the remarks made in this communication. In the fifth column "neck or chest" designate the situations of the stricture either at the level of the cricoid or below the manubrium sterni. There were two strictures in Case 4.

If gastrostomy is to rest upon the verdict of statistics, my cases are condemnatory of the operation, but this I do not allow. Whatever may be the value of statistics in pure, radical, surgical operations, they fail when discussing medico-surgical and palliative operations, where not the disease but its effects are treated. The result in such cases depends more upon the general state of the patient or the life-history of the disease than the risks of the operation, for palliative operations should not involve great risks.

The ages in my cases are between 44 and 66 years, and it is the oldest of the patients that was benefited by the operation. He had had dysphagia only two months, and therefore had lived only that time on liquids. All the others had had dysphagia for longer, even for one year, the periods of liquid diet being from three to nine months, one patient even being reduced to enemata before he presented himself. Of the three who died after the operation, two did not do so from any operative cause, but sank exhausted, and the autopsy showed the disease to be the sole cause of death. The third (Case 4), who lived six days, had his death hastened by the operation, yet the autopsy showed that gastrostomy alone offered any chance of relief, two œsophageal strictures existing.

In the uncompleted case the accident of hæmorrhage occurring during the operation, and the danger of continuing the anæsthetic, alone frustrated the operation. The patient's condition was otherwise very favorable, but relief came too late.

With regard to operative points, Case 1 illustrates the difficulty of exactly finding a collapsed stomach. Both liver and stomach were very low down in regard to the edge of the ribs, and the patient was noticed to be very long-chested. A horizontal incision near the ribs alighted, therefore, on the liver too far from its edge to allow of its being raised, and hence the necessity for a second incision.

This was a vertical one, and in all subsequent cases the same was employed, at the outer edge of the left rectus muscle. Where resonance could be perceived, there the cut was made in all cases, while, when this guide failed, an incision four inches long was made vertically downwards from the cartilage of the seventh rib.

In Case 4 the passage of the catheter into the peritoneum was due to the non-adhesion of the stomach to the parietes between the interrupted sutures that had been employed. And this non-adhesion was partly due, I believe, to non-reparative power (since at the post mortem no lymph could be detected)

and partly by a gaping caused through the tension upon the stitches.

At the operation I had observed the red injection of the gastric walls, in lieu of the usual blue-white tint, and suggested their being diseased; and I had also remarked the great traction necessary to bring the stomach to the surface. Both these circumstances were afterwards explained by the growth in the walls of the stomach and about the head of the pancreas. The traction employed may also have hastened the jaundice, which, however, would doubtless have come on shortly of itself.

Save, then, in the one case, I do not think the operation itself can be charged with materially shortening life, while the various circumstances that here combined to bring about the accident that killed, are not likely to be often met with.

In Cases 1 and 3 the stomach, though filled, could not digest nor absorb food; this illustrates a point of difference between gastrostomy and other palliative operations. The patient is concerned in it as much as the surgeon; the latter may fill the stomach but the owner of it must digest. It is the exact converse of colotomy, hence this may save a life in a stage of exhaustion, which would for ever hold in abeyance the necessary physiological processes demanded by gastrostomy.

Œsophagotomy is suggested as a better operation, but I fail to see its claims. Putting aside the question of operative difficulties, the opening of the œsophagus must be, in its immediate results, less certain than gastrostomy. It may happen to be just below the growth but also above it. In the former case it is operating near a malignant growth, which is not advisable, while in the latter the stricture must be dilated ere the stomach can be reached. Dilatation of a cancerous stricture of the œsophagus is not to be generally recommended certainly, and where considered advisable it may be as easily accomplished, it seems to me, through the mouth without œsophagotomy.

Gastrostomy must always carry the surgeon below the growth and out of its neighbourhood; and in four out of five of the cases I have quoted, opening the œsophagus would have been worse than useless, since the growth was placed below the manubrium sterni. The suggestion made by Mr. Reeves, that in performing œsophagotomy, "if the diseased œsophagus were reached," the tube might be opened "either by the finger or the thermo-cautery," is very astonishing and one that a surgeon may well hesitate to accept.

The treatment by dilatation can be fairly tried when the growth is at the cricoid level, but in the chest the risks run

are greater than those of operating. The cause of failure in my cases is that relief came too late.

The prolongation of life by the operation is inversely as the length of the previous dysphagia, or, in other words, depends upon the general state of the patient rather than upon the operation.

If done when liquid diet is first being resorted to, and before regurgitation is established, it appears both a safe and justifiable operation; but later in the disease, when the patient's powers are exhausted and food is rejected, surgical interference becomes a matter of graver consideration.

Yet I would not withhold gastrostomy from those whom I might see late in the disease when death from starvation seemed inevitable, but I would somewhat modify my method of procedure. I believe the administration of an anæsthetic is the great cause of depression to powers already low, and I would not therefore wait for adhesion of the stomach to the parietes to occur before opening the stomach, but would as part of the operation at once administer food judiciously through a small puncture made at the time. With regret I must admit that the fear of extravasation of food or of provoking vomiting deterred me, in Cases 1 and 3, from doing this, where had I done it I think life might have been saved. The delays of twenty-four and of forty-two hours allowed the onset of an all but cadaveric state, when, though fed, the patient was too collapsed to digest what was administered.

VIII.—*A Case of Cancer of the Œsophagus, in which Gastrostomy was performed.* By Sidney Coupland, M.D. *Read November* 11, 1881.

JOHN C., a labourer, æt. 60, was admitted into the Middlesex Hospital, under my care, on March 10, 1880. He was an emaciated, worn-looking old man, of sallow complexion, iron-grey hair and marked arcus senilis. He complained of extreme weakness and of inability to swallow food, which was almost immediately ejected, of soreness in the chest, and pain in the region of the larynx.

He had enjoyed good health up to about eight or nine months before his admission, when he first experienced difficulty in swallowing. The food seemed to him to lodge half

way down the gullet, and was ejected sometimes immediately after being swallowed, sometimes after a short interval. He indicated the upper end of the sternum as the point of arrest. The dysphagia gradually increased, so that during the greater part of that time solids could not be retained, and latterly even fluids were generally regurgitated. He had lost much flesh, and of late had suffered from constipation. There was no history of cancer in his family.

His pulse was small and thready; the extremities cold and livid, the finger-tips being markedly bulbous. There were one or two enlarged glands below the jaw, and one especially large and firm in the left supraclavicular region near the sternum. The larynx was freely movable and there was no thickening around it. The abdominal walls were much retracted and flattened, and there was slight tenderness in the epigastrium. No distinct stomach-resonance could be obtained on percussion. The liver was not enlarged. The thorax was deep and long, and the lungs obviously emphysematous, the resonance on the left side obscuring the cardiac area and reaching to the costal margin. The breath sound was harsh, expiratory murmur prolonged, and scanty sonorous rhonchus was audible over the chest.

When given some water to drink, he asserted that it seemed to stop opposite to the thyroid cartilage, and in about half a minute it was regurgitated unchanged. On auscultation in the left vertebral groove whilst he was drinking, a bubbling sound was traceable to a level with the eighth dorsal spine, but not below that joint. There was dulness on percussion over the upper third of each back.

In spite, then, of his subjective sensations, the result of physical exploration was to point to the middle or lower part of the gullet as the seat of the obstruction, whilst the presence of the diseased lymphatic glands in the neck left no doubt as to its malignant nature.

He was allowed only to take a small quantity of beef tea and milk by the mouth, and after the lower bowel had been thoroughly cleared out by enemata the main nourishment was given by injections containing beef tea, brandy, and egg. Owing to his extremely collapsed state alcohol and ammonia were also given by the stomach.

Under this treatment and the rest in bed he slightly rallied. The pulse improved in volume, but the temperature was always subnormal, reaching a minimum of 96·4° in the morning of the 14th. He complained occasionally of pain behind the sternum;

and even the fluids given by the mouth were mostly rejected soon after being swallowed. On the 16th I again examined the œsophagus by auscultation, and could hear no trickling of the water swallowed as low as the ninth dorsal spine, although it was audible at the eighth spine level.

Notwithstanding the advanced condition of the disease and the great enfeeblement one felt that nothing but resort to surgical interference could prolong his life, which now depended solely upon the nutriment absorbed by the rectum, and for that reason I asked Mr. Henry Morris to see the patient. For the subsequent notes of the case and for those of the post-mortem examination I have to thank Mr. Morris, who has also kindly lent me the drawings exhibited.

Mr. Morris saw the case on the 17th, and explored the œsophagus by a full-sized bougie, which however, failed to to pass down more than seven or eight inches. Its withdrawal was followed by the ejection of some grumous blood-stained matter. Another attempt with a smaller instrument had the same result. After this he managed to keep down some tea and egg and some Brand's essence of beef, and himself fancied that his power of swallowing had improved. But he still, at times, ejected matters of a brownish-red colour, and it was questionable whether any appreciable amount of food reached the stomach. Mr. Morris considered that gastrostomy was justifiable, and on the morning of the 19th performed the operation, chloroform and then ether being administered.

A vertical incision, about three inches long, was made over the upper part of the left linea semilunaris, commencing immediately below the edge of the thorax. The different strata were cut through upon a director until the peritoneum was reached, into which a small incision was made. After elevating it (the peritoneum) well in a pair of forceps, omentum welled up through the opening immediately on relaxing the hold of the forceps; this was pushed back by the index finger of the left hand, and the peritoneum was cut to the same extent as the other tissues upon a director, supported by the finger in the abdominal cavity. Two or three small veins required torsi-pressure, but all bleeding was checked before the peritoneum was opened. The stomach and left side of the liver came at once into view. The former, although very much contracted, and not apparently wider than a good sized colon, and although lower in position than might have been expected, was recognised by its white colour, the thickness of its coats, the absence of longitudinal bands and patches, the omentum passing off from

its lower edge, and when opened by the marked acidity of its scanty contents. With a pair of vulsellum forceps the stomach was seized and drawn up into the wound, whilst two sutures were introduced on long needles in handles. Large vessels ramifying in its walls were avoided as much as possible whilst making a vertical incision of about an inch and a quarter in length. Some delay arose at first from troublesome hæmorrhage from the cut edges of the stomach, and secondly, from the welling up of a thick, dirty, brownish-yellow fluid contained in the stomach. Great care was taken to prevent either escaping into the peritoneal cavity. This was secured by placing sponges all round the wound and drawing the edges of the stomach well upwards between them. Bleeding was then deliberately arrested by torsi-pressure accurately applied to the bleeding points, whilst the risk of the further escape of stomach contents was prevented by a sponge introduced through the opening in the wall of the viscus. Two double sutures an inch apart were passed from side to side through the abdominal walls and stomach before the latter was opened; these were caught up by a blunt hook and drawn out and divided, and then tied as quill sutures on each side. The lower edges of the wound in the abdominal walls were brought together by a stout suture passed through peritoneum, muscles, and skin. Finally several interrupted sutures fixed the stomach to the abdominal wall (including the peritoneum) between the quill sutures, and others were applied alongside the pieces of bougie used for the quill sutures, so as to bring the edges of the mucous membrane accurately in contact with the edges of the skin.

The operation altogether lasted from 9.50 to 10.35 A.M. Ether was well borne. There was no vomiting excited, and the pulse improved under its administration. Oiled lint—1 in 60 carbolic acid—was applied over the wound, boracic acid lint and boracic acid charpie over that, and an ovarian bandage over all.

The vertical incision was preferred to the oblique, owing to the great length of the thorax and the sinking in of the abdominal wall immediately below, which it was thought would give rise to inconvenient dragging of the skin over the edge of the thorax after the sutures were fixed. Further, the great width of the rectus muscle, it was supposed, did away with any fear lest by following the semilunar line the incision would be too much towards the pylorus.

The operation was followed by no vomiting. He slept a

little, and on awaking complained of hunger and of pain in the left side. He expectorated some frothy and offensive fluid, moist râles developed in the chest, and he could not cough because of the pain. By supporting him towards the left side the breathing became easier. The nutrient enemata were continued every three hours.

He slept for short intervals during the night, and the bronchitic signs passed away. The next morning the temperature was 97°; pulse 74. He felt very well, but hungry and thirsty, and was allowed occasionally to take a little Brand's essence, or egg and tea, or cocoa, by the mouth, as well as ice, which was freely given. He was free from pain and comfortable. The sputa contained light liquid blood.

On the second day after the operation (March 21) he continued to be easy and comfortable, although still suffering from hunger and thirst, and occasionally of difficulty in breathing. The discharge from the stomach, which had been throughout profuse, requiring change of dressings twice daily, was less offensive than at first.

On the third day he was more restless and weaker. There had been no vomiting. More brandy was added to the enemata, and in the afternoon a small quantity of food was cautiously given by the wound, viz. a drachm each of brandy and Brand's essence. This was ordered to be syringed into the opening every half hour, but it was at times omitted, as it did not always seem to be absorbed, and some appeared to flow out again into the dressings. On this account it was decided the next day to administer solids, as being more likely to be retained. Accordingly small fragments of hard boiled egg and underdone mutton chop were inserted into the stomach to the amount of one teaspoonful every half hour.

On this day (the fourth) the quill sutures were removed, the margins of the gastric and parietal wounds being united. A few drops of pus were met with in one or two of the punctures. The patient was still very weak, and some brandy was injected into the stomach, as well as some tincture of iron, given also with the Brand's essence. He now, however, became intolerant of the enemata, and next morning was obviously weaker. Temperature 99°; pulse 90. Breathing, too, was laboured, and in spite of free stimulation he rather suddenly collapsed, dying at 10.30 A.M. on the 25th, or the fifth day after operation.

The post-mortem examination was made the following day by Mr. Morris, whose notes are transcribed.

The enlarged gland behind the inner end of the left clavicle

was of the size of a walnut; it was firm externally, but presented a cheesy section, which easily broke down in the centre. [A scraping yielded abundant epithelioid cells.] The thorax was very long; an opening, about 1¼ inch long, vertical in direction, leads into the stomach over the upper end of the linea semilunaris on the left side. The edges of the skin wound were gaping and decolorised. The finger introduced here could not pass into the peritoneal cavity, but into a small pouch between the muscle and subjacent areolar tissue. After opening the abdomen along the linea alba, two incisions at right angles to this were made, one above and one below the gastric opening, so as to expose the connection between the stomach and wall of the abdomen. The omentum, passing off the lower border of the stomach, was seen to be adherent to the margin of the lower part of the wound, and some of these adhesions gave way readily under the necessary manipulations. The stomach itself was securely united to the abdominal wall along the margin of the wound. A little suppuration was noticed in the tracks of one or two of the sutures, between the layers of the abdominal wall. There was an entire freedom from peritonitis.

After removing the costal cartilages and taking out the right lung and the heart, the posterior wall of the pericardium was seen pushed prominently forwards by a large oval growth situated behind it. To this growth the posterior portion of the lower lobe of the left lung and the lower part of the root of this lung are adherent. The growth surrounded the lower five inches of the œsophagus and spread below the diaphragm, so as to be visible on the front of the cardiac end of the stomach, and slightly adherent to the capsule of the left extremity of the liver by adhesions, which were easily broken down. The lower three inches of the thoracic aorta were surrounded by the right side of the growth, and an enlarged gland, the size of a walnut, loosely held by alveolar tissue between the vertebræ and vessels, pushed forwards slightly the upper part of the abdominal aorta. The lumen of the aorta was not appreciably encroached upon, and the vessel as seen from within appeared healthy. (Plate III.)

The great *cul-de-sac* of the stomach was drawn closely up beneath the diaphragm, and the artificial opening was two inches from the pylorus. The viscus contained a small quantity of food, including some pieces of meat, in a partially digested state, some of which were to the left of the opening and in the great *cul-de-sac*. Omentum quite natural, with the exception

DESCRIPTION OF PLATE III, TO ILLUSTRATE DR. COUPLAND'S CASE OF CANCER OF THE ŒSOPHAGUS.

a.—Innominate artery just above its bifurcation.

b.—Œsophagus cut and laid open.

c.—Aorta pushed over to the left side.

d.—Portion of the diseased mass on back of aorta and closely adherent to its outer wall.

e.—Enlarged gland, separate from but close to diseased mass, behind aorta and connected with it loosely.

f.—Cut ends of bronchi and vessels at root of right lung.

g.—Glass rod passed through the diseased mass along the narrowed œsophageal passage into the stomach.

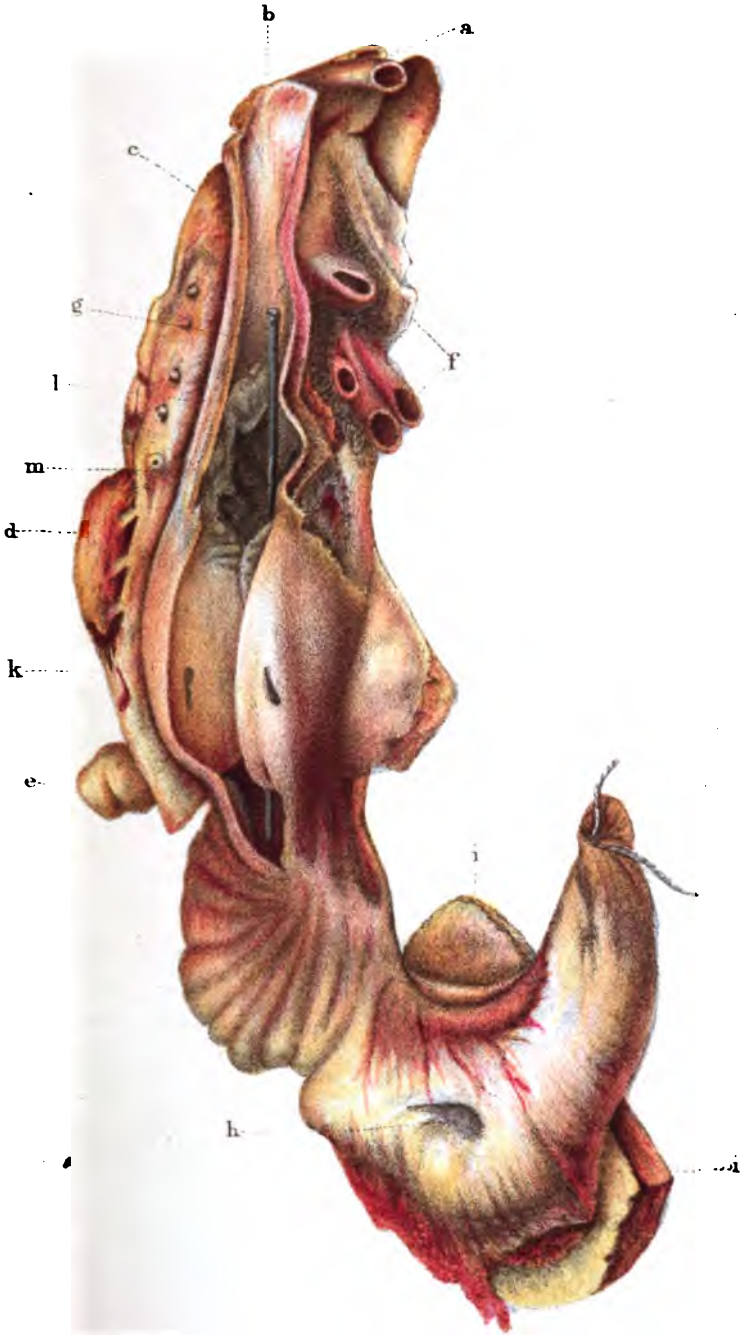
h.—Posterior surface of stomach pointing to depression corresponding to the artificial opening in the front wall.

i. i.—Inner surface of a portion of abdominal wall to which the stomach is attached.

k.—Tumour partially cut through from behind and laid open.

l.—Tuberous mass limiting the disease at its upper end.

m.—Large cavity formed by the breaking down of the disease and limited in front by the pericardium only.



M. Fischer, del. Mintern Bros. Chromo lith.

Dr. Coupland's case of Cancer of the Œsophagus

stated, viz. that a small portion of the great omentum close below the opening in the stomach was adherent to the abdominal wall. The duodenum and upper part of the jejunum contained a considerable quantity of chyme; the greater part of the small intestine contained but little, though it was by no means empty, some bile-stained semiliquid fluid being scattered throughout. The transverse colon contained three or four masses of firm, though not hard, fæcal matter of a light-brown colour; the descending colon, sigmoid flexure, and upper part of rectum were full of light-yellow coloured fæces of the consistency of soft clay. The structures of the intestines and mesenteric glands healthy.

Spleen and kidneys healthy. Liver healthy. The gall-bladder was moderately distended with bile. The apex of the right lung was adherent; an elongated, narrow, and calcareous mass existed at the upper and back part of the root. The left lung was adherent to the growth, as stated above. Both lungs were inflated and quite healthy, except that a small quantity of dirty mucus occupied some of the bronchial tubes. Heart healthy, weighed 9 oz.

After removing the diseased parts *en masse*, the finger, on being passed over the vertebral column, detected a hard, sharp, angular projection in the situation occupied by the diseased portion of the œsophagus. This was found to be due to the marked lateral projection to the left of the intervertebral substance between the eleventh and twelfth dorsal vertebræ, the body of the twelfth dorsal, and to a less extent that of the eleventh, being so constricted on this side as to form a depression nearly large enough to admit the index-finger. The intervertebral substance between the tenth and eleventh vertebræ projected similarly, but to a less extent, on the left side; and one or two of the substances immediately above presented a similar but slighter projection to the right. The ligamentous and areolar tissues covering these parts were perfectly healthy, as were the other parts of the column itself.

On making a section through the growth, a large recess towards the interior of the œsophagus had been formed by the breaking down of the upper part of the tumour. This recess contained a considerable quantity of dark, thick, coffee-ground-like fluid. It was limited in part by only the outstretched portion of the pericardium just below where the serous membrane is pierced by the left pulmonary vein.

Remarks.—The resort to gastrostomy in this case was manifestly but an attempt to prolong a life already near its

close. The malignant nature of the stricture was so obvious, its extent—as judged by its duration—so advanced, and the general condition of the patient so depressed, that the merits of the operation cannot fairly be tested on such a case. Indeed, the patient was in a most exhausted and collapsed condition when admitted, that, had it not been for the decided rally he made after a few days' rest and nourishment, the idea of gastrostomy would not have been entertained. It will, I think, be found that this is frequently the case in malignant stricture, the disease being already so far advanced that little is to be expected from the operation. For such cases frequently come into hospital only after weeks or months have passed with increasing difficulty in swallowing, during which they not only emaciate and lose vitality, but during which the cancerous growth is submitted to ever-renewed irritation, so that by the time they come under notice the mass is already more or less advanced in ulceration. In support of this assertion I could quote several instances, from post-mortem experience, of cases which have been but a few weeks under treatment, exhibiting most advanced destruction of the gullet, and often implication of the surrounding viscera in the disease.

To be palliative in the *real* sense, that, namely, of removing sources of irritation to a growing cancer, gastrostomy in cases of œsophageal cancer should be done at a time when the symptoms of obstruction are so slight as to be almost disregarded by the patient; and we require to be able to recognise the existence of the disease in its early stages.

At the same time such an operation, which as this and other cases show, can be safely and effectually performed, is justifiable even in extreme cases, in order to obviate the continued passage of food over the ulcerated and sloughing surface, and to replace the precarious sustenance derived from nutrient enemata by the direct introduction of food into the stomach, to ward off death by starvation, and to prolong life. In the present case the sense of hunger was so great that some liquid food was still given by the mouth in very small quantities, and some of this certainly reached the stomach, whilst the intolerable thirst was relieved by taking ice.

I have of course no opinion upon the method of the operation, but I may, perhaps, be permitted to point out for future guidance that in this case the opening was found to have been made nearer to the pylorus than was anticipated from the site of the skin incision. This was apparently due to the contracted and empty state of the viscus, and the consequent posi-

tion of the pylorus more to the left than normal. Owing to this situation of the opening feeding through the wound was not easy, especially by fluids, which often regurgitated, and this led Mr. Morris to substitute masses of solids, which were more readily retained. This point in the after management of such cases seems worthy of consideration.

IX.—*A Case in which a Pebble was removed by Tracheotomy from the Right Bronchus.* By R. Clement Lucas, B.S. *Read November* 11, 1881.

S. E. T., æt. 4, a healthy little boy, sixteen days before admission into Guy's Hospital, was playing with what was supposed to be a cherry-stone, and, having put it into his mouth, accidentally swallowed it. He was immediately seized with violent paroxysms of coughing and great difficulty in breathing, which lasted for a short time and then passed away.

From that time he was usually seized about twice daily with these paroxysms of coughing, which were always accompanied by distressing dyspnœa. During the attacks the face became blue and the veins prominent and turgid. It was especially on waking from sleep that the coughing became violent. In the intervals between the paroxysms he suffered no distress, and was able to laugh, sing, and swallow without the slightest discomfort.

Immediately after the occurrence he was taken to a medical man, who correctly diagnosed that the foreign body was lodged in the air passage, and ordered medicine to allay the spasm. On July 14, the sixteenth day after the commencement of the symptoms, the child being much worse, Dr. Hilton Fagge was consulted, and he recommended it for admission into Guy's Hospital.

The child was a well-nourished healthy looking boy. On admission he appeared to breathe with difficulty, and Dr. Fagge had heard râles over the right bronchus. The cough was violent, rasping, and jerky, unaccompanied by whooping or wheezing. When the paroxysm came on the child became blue, and almost suffocated. I noticed, further, that during the effort of coughing, with my finger on the trachea, the foreign body could be felt to rise and strike that tube and then fall back again.

The trachea was opened under my direction by Mr. Wood, the house surgeon. Considerable hæmorrhage took place from the lower edge of the thyroid isthmus, which was notched, but it was readily controlled. The tracheal wound was then held open with retractors. At this time the child became livid and ceased breathing, but artificial respiration restored it. The coughing which followed failed to dislodge the foreign body.

I next passed, with a semicircular needle and needle-holder, a silk suture through the margin of the incision in the trachea on either side. By means of these sutures the trachea could be drawn widely open, and the child was then inverted and struck several times on the back. This, however, failed to dislodge the foreign body from its position, but on placing the child again on its back a fit of coughing brought the pebble into view. It was two or three times sucked back by an inspiration after it was seen in the wound, but it was eventually dislodged and prevented by forceps from re-entering. The pebble was about the size and shape of a cherry-stone, weighing 11 grains, and of white colour. No tube was inserted into the wound, which was left open, being simply covered with moist lint.

The child passed a quiet night, but on the following morning had a temperature of 102·4°. The urine passed was loaded with lithates. On the second day, after a restless night, the temperature was 101·8°, and the child continued to breathe chiefly through the wound, through which some muco-purulent material was coughed up. Râles were also heard over the chest, and poultices were applied. On the third day the temperature rose to 102·8°, but fell towards evening, and on the following morning had almost reached normal, but rose again in the evening to 101·4°. The temperature continued to rise at night for a week after the operation, and then all went on smoothly; the wound gradually closed by granulation, and the bronchitis subsided.

The child left the hospital well on August 4, about three weeks after admission.

Remarks.—The interest in these cases rests partly on the diagnosis and the determination of the position of the foreign body, and partly on the means to be adopted for its removal; since, if left in the air passage it will almost certainly, after a longer or shorter interval, destroy the life of the patient. The history is an excellent instance of the inexactness of the most unprejudiced evidence. What the parents thought to be a

cherry-stone proved to be a pebble, a body which, owing to its weight, was much less easily expelled than a fruit-stone. Some years ago a child came under my care for a collar-stud impacted in the œsophagus, giving rise to laryngeal symptoms and croup-like dyspnœa. The father, who had worn this stud, described it as an ivory stud with a gold or metal cap, but when it was recovered it was found to be a metal stud with a white cornelian set in the button. It is not to be wondered, then, that credible witnesses in criminal cases should occasionally be in error when cross-questioned as to details, for the friends of these two patients could have had no object but to give the best information they possessed.

The diagnosis in this case was clear and indisputable. The child was suddenly seized with violent coughing and dyspnœa, and the supposed cherry-stone with which it had been playing was missed. It was evident that the foreign body was not impacted in the larynx, first because the dyspnœa was not continuous, and secondly, because the voice was in no way altered, the child being able to talk and even sing without discomfort in the intervals of the paroxysms. It is well known that a foreign body impacted in the œsophagus will give rise to dyspnœa and laryngeal symptoms, and I have already alluded to a case of this kind in my own experience; but such impaction must necessarily interfere with the passage of solid food, and no difficulty in deglutition was in this case experienced.

Proof that the foreign body was in the air-passage and below the larynx was rendered absolute by my feeling it strike the trachea whilst the child was coughing. That it fell back each time into the right bronchus is an anatomical probability, as a heavy rounded body will almost certainly fall into the larger aperture; but any doubt on this point was set at rest by Dr. Fagge's examination of the chest when râles were detected over the right bronchus.

As to treatment there will not, I think, be much difference of opinion on this point. When every violent respiratory effort that may tend to expel the foreign body also narrows the rima glottidis against it, it is obviously but little likely that it can again escape by Nature's efforts, unless it be of small size. The postponement of tracheotomy is therefore scarcely to be advised. Some, however, may think the high operation preferable to the low. In the case of a foreign body in the larynx, laryngotomy or laryngo-tracheotomy brings the surgeon within easy reach of the body for which he is search-

ing, and this is evidently the operation to be selected. But when the body is lodged at the bottom of the air-passage tracheotomy below the isthmus gives much more space, and, supposing the foreign body not to be expelled in the coughing which follows, the surgeon's aperture is in a much more convenient position for the introduction of forceps.

I would particularly insist on the inadvisability of giving chloroform for tracheotomy operations, and I feel certain that had an anæsthetic been given in this case, I should have lost my patient. When the patient is already half suffocated his sensibility is lowered, and it is of the greatest importance to preserve the remaining sensitiveness of the bronchial mucous membrane, or a little blood trickling down may prove fatal. I have several times seen the operation fatal when performed under an anæsthetic, but I cannot recall a single instance in which the danger was not overcome when no anæsthetic was administered.

The method of passing a suture through the edge of the trachea on either side, which I adopted in this case, for the purpose of drawing open the tracheal aperture, I can strongly recommend as infinitely superior to any dilator or retractors that could ever be invented. By drawing on these the aperture may be pulled open to the full, in whatever position the patient may be placed, and there is nothing in the way of the foreign body which might interfere with its expulsion.

X.—*Two Cases of Direct Transfusion of Blood for Hæmorrhage in Typhoid Fever.* By F. A. Mahomed, M.D. *Read November* 25, 1881.

(*Reports by* Dr. Hopwood, *Assistant Resident Medical Officer.*)

W. A., æt. 26, was admitted into a private room at the London Fever Hospital, under my care, on October 12, 1880. He was a tall, powerfully made, but stout and rather bloated-looking man, who had lived freely and been accustomed to drink rather hard. He was unmarried. His illness commenced thirteen days before admission with chills and weariness, loss of appetite and general stiffness of limbs. He took to his bed a week ago. For the last three days he has been

troubled by incessant vomiting, during this time he has had a sense of constriction around the abdomen, with uneasy sensations but no actual pain. He has had no headache and very little diarrhœa. Has passed many sleepless nights, but had a good night's rest yesterday after a chloral draught. On admission, his expression and mental faculties are dull; face dusky and flushed, conjunctiva injected. Skin fairly moist. Tongue dry, brown, and fissured, lips cracked, slight sordes. Lungs normal except a few râles over both fronts. Heart sounds feeble and muffled particularly the first sound, which is almost inaudible, the second being rather accentuated. Abdomen full, but not fixed. Several typical rose spots. Bowels relaxed, stools characteristic. Pulse 130, feeble and dicrotic. Urine contains a trace of albumen. Temperature ranged between 102° and 103° for first two days.

Oct. 14.—Slept fairly well, no delirium. Looks more dusky. Tongue more dry. Pulse fuller, not better in tone. Bowels not open. Takes nourishment and stimulants well.

16th.—Doing well; pulse fair, 96. Temperature subsiding nicely. Slept well. Looks much brighter. Little cough. Bowels open the day of admission, not since. Tongue a little dry at tip and in centre clean. Enema simplex.

17th.—Temperature subsiding. Abdomen still distended, no pain. Pulse 100, is scarcely so good, but is fair. Slept well. Still a trace of albumen in urine. His temperature during the three previous days having ranged between 102° and 100°, varies now between 101° and 99·4°.

18th (nineteenth day).—Tongue a little dry. Passed a fair night until 7 A.M. when he became delirious, suspicious of those around him, and wanted to get out of bed. This morning the pulse is a good deal quicker and excited. Face flushed. Still delirious, though quieter. Mistrustful, watchful and excited. Pulse 120; respiration 30. Reduce brandy to 4 oz. Stop opium, of which he has previously had one grain every four hours. Chloral, gr. xxx.

19th.—Passed a very bad night. Very delirious and excited, wanted to get out of bed and go home. Hallucinations concerning closely adjacent objects; clutching at things on the bed-clothes. Ordered Pot. Bromid., gr. xxx.; Chloral Hyd., gr. xx, but did not procure sleep. This morning pulse is 110, very fair. Bowels open once, loose and dark. Very violent, requires constant watching. No headache. Temperature for last three days has remained very steady. At 11 A.M. ordered mixture as above every two hours, and Tinct. Opii ♏xxx if

sleep be not induced after four hours. Cut hair from head and put ice-bag upon it.

20th.—Slept well after second dose of chloral, having previously been very restless. He is now much quieter though still delirious and talks much nonsense as to time, place, and people around him. Pulse very feeble and dicrotic, 130. Heart sounds very fair, first sound now very good. Abdomen still distended, still no pain. Bowels open three times, loose and light. Urine albuminous. Lungs normal, air enters both bases well. Tongue shows tendency to dryness.

21st.—Much improved, rational at intervals but delirious. Continue brandy increased to 8 oz., and gr. j of opium every four hours. Was restless and tried to get out of bed last night, but slept well after the chloral and bromide draught followed by ♏xxx of Tr. Opii. Abdomen still distended, but decidedly less so, not so tense. Pulse shows much improvement, decidedly more tone and fuller. Takes his nourishment well. Bowels more relaxed. Muscular tremors not so marked. Ordered Mist. Acid. Sulph. c. Opio for the diarrhœa. *No albumen in the urine.* During October 22, 23, and 24 he continued to improve. His bowels were a little troublesome, acting from four to six times in the twenty-four hours, and he had a little cough. During the 21st and 22nd his temperature varied from 99 to 99·6.

On the 23rd his temperature began to rise slightly, reaching 100·6° at one period of the day; on the 24th it reached 101°, and on the 25th it went up steadily all day, reaching 102·4° at 10 o'clock at night.

On the 25th day of his illness, therefore, a relapse of his fever had commenced, and was well declared on the 27th day.

During October 25, 26, and 27 his temperature varied between 101° and 102·4°, but on the evening of October 27 it ran up to 103·6°.

On this day (the fifth day of his relapse) a fresh crop of spots appeared. His mind wandered slightly at intervals. Brandy, which had been reduced, was now increased to 8 oz.

During October 28, 29, and 30 his temperature varied between 102·4° and 101°, and he appeared to be doing well.

30th.—Bowels open twice last twenty-four hours, stool loose and light. Abdomen less distended. No pain. No fresh spots. Pulse 120, feeble, but no worse than it has been. Mind quite clear. Sleeps well at night. Heart sounds better than yesterday. Tongue still dry at tip. Takes nourishment well. Urine contains no albumen.

Evening. Bowels not opened during the day.

Oct. 31 (32nd day of illness).—Patient slept well at times during the night, but rambled more. Bowels opened once, the motion being loose, dark, and containing a few dark clots. Takes his food well. His temperature fell suddenly. It was 101·8° at 6 o'clock in the evening, and 99·2° at 10 o'clock, sinking still lower, to 98·2° by 7 A.M. on the morning of November 1.

Nov. 1.—Patient did not sleep during the day; very delirous at times. Bowels opened once, stool loose, dark in colour from a little altered blood. Took food well. During this day his temperature steadily rose, attaining 102·2° at 7 P.M. He had not slept during the day, and was still delirious. About 9.45 he passed a stool containing a large quantity of blood, and his temperature at 11 P.M. had fallen to 99°. An ice-bag was applied to the abdomen, starch 2 oz., and Tr. Opii ♏xxx were given as an enema, and a subcutaneous injection of 1½ gr. of ergotine, the latter to be repeated every four hours. When seen immediately after the blood was passed he was pale, body and extremities very cold, pulse small, irregular in volume and rhythm, and very rapid—154 per minute. He was quite conscious, but rambled in his talk. I was telegraphed for, and recommended the continuance of the treatment adopted and the repetition of the ergotine injection. At 12.0 (midnight) pulse before injection 150, five minutes afterwards 142, and at 12.50 144. Arrangements were made for transfusion to be performed in the morning in case of any further hæmorrhage. The starch and opium enema was repeated before I left the patient at 12.0, and stimulants were discontinued. Ice to suck, but no milk to be given at present that the intestines might have no physiological hyperæmia induced. Opium 1 gr. in pill, given every three hours as before, since October 29. As brandy seemed contra-indicated patient was ordered to take ℞. Ammon. Carb. gr. vij, Sp. Chlorof. ♏xx, Aq. ℥j, 4tis horis.

Nov. 2.—At 6 A.M. there was a return of hæmorrhage to the extent of 14 oz. Patient was anxious and restless, with a pulse over 150, small and compressible. In other respects his condition was the same as on the previous evening. Starch and opium enema repeated, and a hypodermic injection of gr. 2½ of ergotine substituted for the gr. 1½.

At 8.45 A.M. hæmorrhage recurred, quantity small and colour dark as on previous occasions. In the afternoon I decided to perform transfusion. Before commencing the opera-

tion Roussel's apparatus, which the hospital possessed, was found to be untrustworthy, air leaking in at the joints of the ball. I had brought direct from the instrument makers an Aveling's apparatus, with some modifications by Dr. Gervis, introducing valves into it; this was now got ready, and the veins of patient and of donor prepared by myself. The cannulæ were inserted and everything was in position, but after expelling the first charge of saline solution, and allowing the ball to expand again, air could be heard hissing into the joints of the ball. Leaving the cannulæ in the veins, the instrument was removed, and an attempt to tighten the joints appeared to be successful; it was again placed in position, but with no better result; it was still found to leak. In consequence of this the operation had to be postponed until a more trustworthy apparatus could be obtained. Meantime the volume of nourishment had been diminished as much as possible, Brand's beef essence being given, with three eggs during the last twenty-four hours, the milk being limited to 1 pint at most. Brandy to the extent of 4 oz. in the next twenty-four hours was now ordered, followed at 6.30 P.M. by Tr. Opii ♏xx. The ergotine injections were continued.

The patient bore the operation extremely well, seeming to feel very little pain, but watching with a considerable amount of interest. His general condition did not alter for the worse, his pulse-rate increasing very slightly, though his temperature rose from 97° to 100·2°.

In the evening, at 9.30, transfusion was performed by Mr. Cripps, with a simple Aveling's apparatus which he brought with him for the purpose; this was found to be absolutely air-tight. The operation was accomplished with the minimum of difficulty, the whole business of preparation and performance being complete in ten minutes. The same person supplied the blood, but the other arm of each was used. Twelve charges of the instrument were injected into the patient's vein (about 3 oz.). Before the operation the pulse-rate was 160, after it fell to 144. There was no other obvious change in the patient's condition, except that a rise of temperature, which had commenced at 4 P.M., continued up to 10 P.M., when 101° was reached.

Nov. 3.—Patient slept well after 2 A.M., but at 6·45 A.M. he vomited what he had taken just before (eggs and beef essence). This occurred again at 9 A.M. and 11·40 A.M., but did not recur. Pulse 150. Bowels not opened during the night, but at 10 A.M. about 2 oz. of dark blood were passed and the starch and

opium (♏xxx) injection was repeated. The temperature had been falling all night and at 9 A.M. reached its lowest, 96·4°; from this it rose to the normal at 11 A.M., and an almost continuous rise continued throughout the day till midnight found the temperature at 103°.

The heart's action, which had been rather feeble in the morning, improved after mid-day, the pulse falling to 120, its volume and power being greatly increased. Heart sounds very good; first sound clear, action regular. Expression pinched; looks as if he had fallen away rapidly. Still anæmic. Patient is inclined to lie on the right side, is imperfectly intelligent, but can speak and even call out with fairly good power. Scarcely any tremor; no sordes. Tongue dry, with brown patch over centre. Has an inclination for Seltzer. Takes beef essence well. Respiration tranquil, but has a little cough. No abnormal physical signs in front of chest. Abdomen not at all distended; no spots visible. His expression and the vomiting are really the only disquieting symptoms. His pulse and heart show infinite improvement. He slept well at times and passed water freely, but his bowels were not opened again during the day. A draught containing Tr. Opii ♏xxx, and chloral gr. xx, was given in the evening. Ergotine was injected subcutaneously at 9 A.M., 12, 6, and 10 P.M. during the day. Albumen had reappeared in the urine.

Nov. 4.—His temperature reached 103·2 at 2 A.M. last night and then fell steadily; during this day it fluctuated between 101·8 and 100. He was still very restless and had many delusions. Bowels opened at 5 P.M. A little dark blood passed with the motion, but the quantity was very inconsiderable. Urine still albuminous. Opium and ergotin continued as before, and a chloral and bromide draught at night.

Nov. 5.—Slept well after draught. Intellect clearer, fewer delusions, not so restless. General condition improved. Heart sounds good. Pulse 132. Bowels acted during the night and again at 4 P.M. when a trace of dark blood was passed. Medicine as before; took food well.

Nov. 6.—Still shows slight improvement. No further hæmorrhage. The injections of ergotine to be stopped. The milk was increased to 2 pints and the brandy from 4 oz. to 6 oz. Heart acting fairly well, but systole prolonged. Pulse 130. Has coughed up a teaspoonful of viscid yellow expectoration, slightly aerated. No abnormal physical signs in lungs. Albumen still present in the urine. His temperature during the 5th and 6th varied only between 100 and 101·4,

but at midnight on this day it had run up sharply to 102·8; this was followed by a morning fall to 99·4.

Nov. 7.—In the morning he was much as usual, but as the day passed his general condition changed for the worse. His temperature rose from 99·4 at 12 noon to 101·8 at 4 P.M., and 102·2 at midnight; and his pulse from 132 to 140 in the afternoon and 144 in the evening. Eyes duller and more sunken, tongue drier and articulation more difficult. Breath very offensive. He is very irritable and restless. Attempts to tear bandages from arms, the wounds in which are going on well. Lost a little blood from the violence he used to his arms.

Nov. 8.—At 9.30 A.M. pulse was 140, soft and small, but still of better tone than his appearance suggested. Patient more prostrate and rambling, eyes very dull, face expressionless and pinched, attention more difficult to attract and maintain. No albumen in the urine. His temperature had been about 102·4 during the previous night and early morning, began to fall about midday and declined steadily till it reached 99° at 8 o'clock at night. At 2 P.M. a dark stool was passed containing some altered blood and probably some old clots mixed with fœcal matter.

Nov. 9.—Much worse this morning; very dull and apathetic. Pulse 152. Heart acting weakly and irregularly. Temperature had fallen to the normal by 10 A.M., but there was no corresponding improvement in general condition. Patient had slept well at times and the bowels had not been open. Complains of pain in the left side of abdomen. Arms dressed. Both wounds going on well. In the afternoon pulse went up to 156; temperature rose again and peculiar irregularity of respirations appeared. Seven pretty vigorous respirations (crescendo and diminuendo) were followed by a period of rest, longer than that of action, during which no movement of the chest was perceptible. Brandy had been increased to ℥viij at noon and to ℥xvj in the afternoon with a pint of champagne as alternation for part of it. The latter he was, however, unable to retain. He now became unable or unwilling to take any food; he rallied a trifle towards evening, but most of the evening and all night he lay quite still with eyes and mouth part open; lips quivering as if in attempt at speech. Respiration as before. Bowels open once during the night, a scanty dark motion.

Nov. 10.—In early morning he became a little more sensible and the respiration became more normal. Distressing hiccough and vomiting of bile now occurred. Very little food or brandy

could be taken. A dark stool with a little fresh blood in it was passed at 10 A.M. During the day he steadily sank in spite of all treatment, and died utterly exhausted at 7.45 P.M. His temperature had risen the preceding evening to 102·4, and varied between that and 100·2 on the day of his death, which occurred nine days after the operation, on the 44th day of his illness and the 19th of his relapse. The autopsy showed the usual appearances of typhoid fever, with the exception that the spleen was of normal size and consistency. Liver rather large and fatty. The ulcers in the intestine were large and deep. A mere touch of the finger caused rupture of the cæcum, but there was no sign of peritonitis in the abdomen or of hæmorrhage in the intestines. Kidneys weighed 8 oz. each, they were pale, with cloudy swelling of the cortex. Heart rather pale and soft. Lungs healthy. Nothing else abnormal discovered.

CASE 2.—H. B., æt. 25, a policeman, was admitted into the London Fever Hospital on Oct. 5, 1881. His appetite had been failing him for about two months, but twelve days before admission it became much worse; he found himself very weak at this time. He was on night duty, and continued to perform it for three days, but was very weak in the morning when he went off and felt "regularly knocked up." He had a little headache and pain in the bottom of the back. At the end of three days he went to the police surgeon and was taken off duty. For the last four days he has had pain in the bottom of the stomach, chest, and head. His nights have been very restless. Has been sick five times. The skin has been hot for six days, and he has had shivering. Bowels have been open scantily on an average once every three or four days. Appetite has gone. He has had beef tea and barley water only.

On admission he is a tall, well-made man, of good proportions and well nourished; ruddy complexion and light brown hair and beard. Face flushed. Skin hot, temperature 103·2. Complains of the symptoms mentioned above. Was able to walk into the ward with assistance. Tongue moist with red edge, white fur in the centre. Abdomen is slightly full, pain in lower part. No tenderness on pressure. Bowels open once this morning. No spots; slight cough. Chest is resonant all over; air enters well. Heart, normal sounds rather weak. Pulse 102, regular, not dicrotic. Ordered eggs 3, milk, beef essence Oss, brandy 4 oz., Pil. Opii gr. j ter. die. A bath at 75° immediately and whenever the temperature is over 102.° On the day of admission he had two baths. After the second his temperature (in axilla) had fallen to 95.°

Oct. 6.—Slept well during the afternoon. No delirium. The bowels have not been open since admission, and the motions previously were very scanty; the abdomen is rather distended and contains much flatus. He complains much of abdominal pain. Tongue moist and slightly furred. Chest normal. Pulse 116. Ordered a simple enema, and the opium pills to be increased to four in the day. He had five baths this day, the temperature was much reduced by them, again on one occasion to 95°, and the reaction was severe, on three occasions the temperature reaching 104·8°, 105·2°, and 105·6° respectively, at intervals of 4, 6, and 4 hours.

Oct. 7.—Bowels open once after enema, solid motion. Tongue moist, white fur. No pain in the abdomen, but it is tense and full. Is wandering slightly. Chest normal. On one occaison, immediately after the bath, his pulse was noted as 160 and very small, but this was only a temporary condition. On this day he had only two baths, and the reaction was not so severe, the temperature only reaching 103·8° at 9 A.M. after the last bath at 11 P.M. on the previous evening, and 103·2 at 1 P.M. after the 9 o'clock bath. At 11 o'clock on this morning 20 grs. of quinine were given, and after his bath at 1 P.M. the temperature rose very slowly, reaching 101·8 at 7 o'clock and then steadily falling till 3 A.M. on the morning of the 8th, when it had reached 97·2°. It then rose steadily and six hours later, at 9 A.M., it had only reached 100·4. At 11 A.M. 20 grs. of quinine were again administered; by 7 P.M. the temperature had reached 104·2, but then fell quickly and was reduced to 99·2 by 3 A.M. on the morning of the 9th. On October 8th, his abdomen being tense and pain greater, his pills were increased to six a day. Bowels have been opened twice, loose and light. Takes his food well. Rambles slightly. Chest normal in front. Pulse 100. He had no baths after the 7th.

Oct. 9.—Much the same but he has been coughing a little and looks dusky. Lungs, resonance in front on both sides, respiratory murmur normal. Behind, dulness at bases, moist sounds. No bronchophony, no bronchial breathing. Ordered turpentine mixture. The quinine, of which he now took 20 gr. regularly at 11 A.M. every day, had, so to speak, inverted his fever, so that his temperature fell during the afternoon and evening, and rose during the morning; it attained its highest point on this day and for several days following at 11 o'clock. On this day (October 9) it reached 103·8 at this time, then falling with oscillations (running up between 1 and 3 P.M. to 104·2) to 101·2 at 1 A.M. on the morning of the 10th. Between

7 A.M. and 11 A.M. on this day it rapidly rose to 104°, and then quickly and uninterruptedly falling it reached 98·6 at 9 P.M. During the next three days, namely, the 11th, 12th, and 13th, the lung symptoms were steadily increasing in severity, and his temperature, in spite of the quinine, continued closely about 103°, rising on the afternoon of the 12th to 104·6, and falling at 5 P.M. on the 11th, and again at 5 A.M. on the 13th, to 100·6 and 100·8 respectively. On October 13 I made the following note:—"The most characteristic feature of this case is *the remarkable absence of vesicular murmur all over right lung*, front and back. Scarcely any air appears to enter it; it can be heard forcing its way with slight squeaking, creaking, and grunting sounds into the swollen tubes and air vesicles, as if under the greatest difficulty; there is no free rustling vesicular murmur, nor is there any tubular breathing or approach to it. This lung is not dull in front, but there is well-marked comparative dulness all over the back of this lung. These signs were much the same on the 11th inst. when I examined the chest. But he is decidedly less dusky than on that occasion (but this is morning and that afternoon). His breathing is quiet and not distressed though rather quick, 32 per minute. Pulse good power and steady. He is on the whole better." At 1 P.M. of this day his sputa was tinged with blood. On the following day (October 14), his temperature fell rapidly during the evening and reached 99·6 by 1 A.M. on the 15th. His pulse on this day was only 100, and respirations 28. No dyspnœa. Thick white sputa.

Oct. 15.—Consonating râles over right back, especially about the angle of scapula. Much better, breathing freely. Temperature falling. It did not rise above 101·6 on this day.

Oct. 22.—Two solid motions followed by two loose and dark ones. Great pain during passage of hard stools. No pain in abdomen; no distension, no pain or tenderness. Temperature rose again to 104°. Complained of more difficulty in breathing, but this did not at all amount to dyspnœa. Breathing very irregular but certainly with increased rapidity (probably 28). Pulse 120. At 4.30 on this day copper coolers were put in axillæ by their inventor (Mr. Strachan), and a small ice-bag over carotids (which, however, could not be kept in place). Temperature fell from 102·8 to 102·2 in 30 minutes, but rose again to 104°, probably because of stoppage of the tubes.

Oct. 23.—Bowels open three times; solid light motions. Owing to the tubes becoming blocked from the ice containing

dust which gets into tubes, the apparatus had to be taken to pieces, every tube examined and replaced by other tubing in some cases. It was almost impossible to keep the cones in place; they were found about his knees once, and the movements of his arms always displaced them.

Oct. 24.—Apparatus went wrong again several times. Three loose dark stools followed by smart hæmorrhage, rendering it necessary to remove apparatus. Ergotine 3 gr. subcutaneously, ice compress, starch and opium enema ♏xxx. Pil Opii gr.j every three hours. Pulse was 144. No more hæmorrhage. Bowels not open again.

Oct. 25.—11 A.M. Bowels not open again. No hæmorrhage. Ergotine 3 gr. subcutaneously. Pulse 132 before giving injection. Compress continued until 3 P.M., when discontinued till temperature rose again.

Oct. 26.—Bowels not open again till last night when three loose light motions were passed. No trace of hæmorrhage. At 3 P.M. rigor for 15 minutes, compress stopped. Temperature was normal in the morning, but patient rambled about dogs and butchers' shops, and going on duty.

Oct. 27.—Still rambled. No more hæmorrhage. Bowels open five times, loose and light. Sick after everything but iced champagne. Still coughed at times. Ordered beef-tea enema with brandy. Doubled quantity of champagne to Oij. Compress stopped. Not sick at all during day, took food by mouth as well. Condition very much worse. Eye glazing over. Pulse almost uncountable. First sound dull and undecided. Digitaline gr. $\frac{1}{32}$ at 11 P.M., opium stopped. Bowels open twice during day, loose and dark.

Oct. 28.—Four ounces of bright blood passed at 3 A.M. Ice compress; starch and opium enema. Eight ounces bright red blood at 10 A.M. Ergotine 3 grs., enema repeated. Sinking. Takes food well. More hæmorrhage in the evening, but darker and smaller in amount. Two loose dark motions during daytime. Lies with his eyes part open, the uncovered part is glazed.

Oct. 29.—Tinct. Opii ♏xx, 3 A.M. Slept fairly. Looked brighter. Heart beat more perfectly and forcibly. Pulse stronger and rather slower. In the afternoon patient's condition became similar to that yesterday but even more hopeless. I decided that transfusion should be performed. Before operation pulse was 148. The blood was supplied by one of the ward servants, and the method used was that of direct tranfusion from vein to vein by a simple Aveling's apparatus. Four ounces of

blood were injected. After two ounces patient's eyes became brighter, his lips redder, and his breathing, which had previously become very quiet and hardly noticeable, now grew quicker and deeper. The operation was finished at 7 P.M. Temperature 100·2°; pulse 140; respiration 28. Twenty minutes after his pulse was 136. Three minutes later after half an ounce of brandy, given by the nurse under the impression that previous instructions still remained in force, caused his pulse to quicken to 156, and he became paler and his respiration slower. It was feared that fresh hæmorrhage had taken place (this proved not to be the case). Five minutes later his pulse was 146. Brandy only given by special order and pulse watched. At 9.20 P.M. (last brandy about 7.30), pulse 136; respiration 30. Face rather flushed; lips good colour. Still slightly conscious. At 11.20 P.M., pulse 144; respiration 30. Breathing shallower and more unpromising. After ʒiij of brandy, pulse fell in 15 minutes to 136. Ordered ʒiij an hour.

The following table shows the effect of giving ʒss of brandy on the pulse, which was counted in all cases for a whole minute.

Time.	Pulse rate.
A.M. 1.20	128
A.M. 1.25	134
" 2.30	136
" 2.40	138
" 3.30	140
" 3.40	144
" 4.30	138
" 4.40	138
" 5.30	130
" 5.40	134
" 6.30	132
" 6.40	134
" 7.50	136
" 7.55	138

Oct. 30.—In the morning, pulse 132; respiration 36. Worse again, but patient was quite conscious and looked quite bright. Did not sleep well during the night or day. One solid light motion, no hæmorrhage. At 11.30 A.M., pulse 136.

At 6.30 P.M., respiration rate 40. Condition of lungs not changed appreciably from that mentioned in note Oct. 13.

Oct. 31.—Did not sleep well last night. Rambled a good deal. Bowels not open. Slept better during day. Morning, respiration 40; pulse 136. Respiration rather slower again. General condition about the same as yesterday. Temperature ranging about 100·2° to 101·8° in morning. Fell to 100 in afternoon. Respiration; 35 pulse 132 to 144. One loose light

stool. No hæmorrhage. In the evening his temperature rose to 102·2° and his general condition much worse. Consciousness diminished.

Nov. 1.—Did not sleep well. Temperature normal this morning. One loose light stool. No hæmorrhage. Takes food well, and is brighter again. Breathing still difficult. Morning, respiration 39; pulse 132. Evening, respiration 32; pulse 138.

Nov. 2.—Just the same as yesterday. Respiration 32. Pulse 136—138. One loose light stool. No hæmorrhage. Pulse rather smaller and feebler.

Nov. 3.—Slept fairly. Barely conscious. Not delirious. No hæmorrhage. Pulse fuller and stronger, 138—140. Respiration 38—40. Temperature normal in morning, rising soon to 101°. About noon râles became more abundant over left front, and patient became more dusky in colour and speedily died.

Autopsy (26 hours after death.)—Rigor slight. Body very well nourished.

Abdomen.—Spleen dark, mottled with white, 8 oz. Liver 4¼ lb., apparently normal. Kidneys 13½ oz., nearly normal. Cortex rather pale. Pyramids rather congested.

Heart 10 oz. The right side distended with post-mortem clot, the left side empty. Valves all normal. Muscle rather pale, from anæmia, but not visibly degenerated to the naked eye.

Right lung weighed 17½ oz. The whole of the lower lobe of this lung was collapsed, completely useless, and softened by subsequent inflammation. The tubes had become reservoirs for purulent secretion, which could not be expelled from them; several of the larger tubes were slightly dilated and could be traced into three abscesses at the extreme base of the lung, which had almost perforated into the pleura. There was not the slightest adhesion of the pleural surfaces over these, the pus was visible through the thin pleural covering, and pneumothorax must have shortly occurred. The largest abscess was about the size of a small chestnut, the other two were about the size of hazel nuts. There was no cheesy pneumonia around them, the area of suppuration ended abruptly in the surrounding softened, airless, and collapsed pulmonary tissue. These abscesses had evidently started by extension of suppuration from the dilated extremities of pus-containing bronchial tubes.

The lower part of the middle lobe of this lung was in a similar condition to the lower lobe, but it contained no abscesses. The remainder of the lung was congested and œdematous, and many of the tubes contained pus.

The left lung weighed 15¼ oz., it was congested and œdematous throughout, and many of its tubes contained pus.

The condition of extensive collapse of the lung would appear to be the same as that described by Dr. Bristowe as occurring in some cases of typhoid fever, which had been treated by cold bathing. In this case I diagnosed the condition early in the disease, on the 11th of October, four days after his last bath, and seven days after his admission. Baths were only employed for three days in this case, and quinine was substituted for them. The first note of lung trouble in the report occurs two days after his last bath.

I have only seen one other case of similar extensive collapse of the lung occurring during typhoid; it was in a young woman, who also had been bathed; but I am not prepared to say whether or not any connection is to be traced between the bathing and the pulmonary collapse.

What Liebermeister calls *splenatization* of the lung would appear to be a very similar condition, and he states that this was found in 7·4 per cent. of the patients at Basle, and 58 per cent. of these died before bathing was systematically used, while it occurred in only 6·4 per cent., and with a mortality of 36 per cent. since bathing has been employed.

The point in the treatment of enteric fever which I wish to raise upon the present occasion, may be considered unimportant, on account of the comparative rarity of the circumstances under which this measure is likely to be called for; but this is not a question, the importance of which can be judged by numbers alone.

The anxiety and responsibility of the physician in the care and management of a severe case of enteric fever is seldom surpassed, if equalled, in any disease; the anxiety must necessarily be great in all cases of the acute specific diseases, which seize on persons in perfect health, and if they terminate in recovery, may leave them still in its enjoyment. It therefore behoves us to give the most serious consideration to any treatment that may turn the scale from death to life, however limited may be the number of cases in which it is available.

The following short abstracts give the leading features of the two cases on which my paper is founded:

The first case was that of an unmarried man of 26 years of age, of good position, who had somewhat injured a naturally fine constitution, by living too 'fast' and drinking too freely. He was stout, rather bloated looking, and thoroughly out of condition. He passes through an anxious attack of enteric

fever, which, during the latter part of it, is complicated by the wakeful, excited delirium, not uncommon during the defervescence of acute diseases; it closely resembles an attack of 'delirium tremens.' Delirium of this kind has occurred in my experience, most frequently, though not invariably, in persons addicted to the excessive use of alcohol. When more or less exhausted by this attack, and before his temperature becomes actually normal, he has a relapse, on the 25th day of his illness. On the 10th day of his relapse and the 35th of his fever, he has a severe hæmorrhage from the intestine, which was followed on the next day by two further hæmorrhages. Exhausted, anæmic, restless, with cold extremities, and a very small, thready, and often irregular pulse, about 160 per minute, he was evidently fast sinking, when transfusion was performed, with the immediate result of bringing down his pulse-rate from 160 to 144. After this he rallied for a few days, and even gained ground so much as to give us great hopes of his ultimate recovery; thus, three days afterwards, his general condition is described as improved in all respects, his mind was clearer, he was less restless, his pulse had fallen to 132, and his temperature varied throughout the day between 100·4° and 101·4°. He held his own for two days, but the fever did not subside; on the 6th day after the operation comes a sudden change for the worse, followed on the next day by the passage of some dark clots of blood which had probably caused it, and subsequently a gradual sinking from exhaustion, accelerated by one or two small, but to him important, hæmorrhages; the case terminating by death nine days after the operation, on the 19th day of his relapse, and the 44th of his fever. Surely this case cannot be regarded as a discouraging one; for not only did transfusion prolong life, but it gave what appeared to be a really good chance of recovery from what had previously been an almost hopeless extremity. When we consider the unfavorable condition of the patient when taken ill, his exhausting delirium and wakefulness, and his prolonged illness; it must be allowed that his circumstances were desperate indeed, and that the treatment which helped even him so much, would be likely to benefit others still more.

In the second case we are dealing with a married man, who had a young family dependent upon him. He was 25 years of age. A powerful, well-made man, who during his attack of fever suffers a probably irrecoverable injury by collapse of a large part of his right lung; while in addition to this he has

severe general bronchitis. On the 26th day of his illness he too has a relapse. On the 5th day of his relapse and the 31st of his illness he also suffers from a severe hæmorrhage; four days later he has three more considerable hæmorrhages, and lapses into a state of complete exhaustion and apparently impending dissolution. Fatal syncope might now have occurred at any moment, and he appeared to be "in extremis" when the operation of transfusion was performed, with the best possible effects; for two days he rallied greatly and gave rise to good hopes, when unfortunately during the exceptionally cold weather which ushered in the beginning of this month of November his lungs again suffered, and an exacerbation of his bronchitis caused his death five days after the operation, on the 15th day of his relapse and the 40th of his fever.

Here again we have another very encouraging result, the patient having been rescued from immediately impending death by means of the operation, the final result being due to a complication having no connection with the condition of his intestine or the symptoms for which the operation was performed.

Since my first case Dr. Gibert,* of Havre, has communicated to the Academie de Médicine an account of a case of transfusion for hæmorrhage in enteric fever.

In this case 20 to 30 grammes of blood were transfused and the operation repeated on the following day. Great relief was afforded, the delirium which had been present ceasing, and the action of the heart improving. Dr. Gibert thinks that life might not be unfrequently saved in this disease by resorting to transfusion when extreme exhaustion has been produced.

The points which present themselves for discussion in these cases, and concerning which I especially seek the opinion of this Society for our future guidance, may be grouped under four heads:

1. Under what circumstances, if any, arising during the course of a case of enteric fever should we feel justified in performing transfusion?

2. In the event of a determination to perform the operation what fluid should be employed?

3. By which method should the operation be performed?

4. How far are we morally justified in submitting the donor of blood to the risk of operation?

It appears that hæmorrhage from the bowel occurs in about

* 'Gazette Hebdomadaire,' April 8, 1881.

6 or 7 per cent. of persons attacked by typhoid fever. Murchison states that out of about 860 cases of enteric fever under treatment at the London Fever Hospital, 60 cases of hæmorrhage occurred, or about 7 per cent. Liebermeister states that out of 1743 cases treated at the hospital at Basle, hæmorrhage occurred in 127 patients, or in 7·3 per cent. While during the last five years at the London Fever Hospital we have had 526 cases under treatment, and in 31 cases hæmorrhage occurred, namely, in 5·89, that is, close upon 6 per cent.

Although it has been sometimes taught that hæmorrhage is not a dangerous complication, especially by Trousseau and Graves, statistics prove that a far larger proportion of these cases die, than of others who do not present this symptom.

Murchison finds the mortality among cases of hæmorrhage 53·33 per cent., whilst his mortality amongst his cases of enteric generally is about 16 per cent. Liebermeister gives 38·6 per cent. of deaths among cases of hæmorrhage and only 11 per cent. of other cases. While at the London Fever Hospital lately we have lost 51·61 per cent. of the cases with hæmorrhage, as against 14·82 per cent. of other cases.

Those cases of hæmorrhage which are fatal do not all die from the direct result of the hæmorrhage. In some cases the hæmorrhage is but slight, and the fever kills by asthenia; a very large number of cases recover from the hæmorrhage and subsequently die from perforation and peritonitis; a still larger group, however, still remain who die directly from the results of the bleeding.

Thus, Dr. Murchison records the fact that out of his 32 fatal cases of hæmorrhage that while 14 died within three days of the bleeding (8 of the 14 within a few hours), 11 of the remainder died from peritonitis, leaving only 7 out of 32 dying from other causes. Our recent experience gives us very similar proportions. Out of 16 fatal cases, 7 died from the immediate effects of the hæmorrhage, 5 from perforation, and 4 from other causes.

Out of about 1400 cases of typhoid fever we have then only 48 fatal cases of hæmorrhage, in 21 cases of which the operation of transfusion might prove of some service. It would not, however, at the best, be likely to succeed in more than a small proportion of these, for after escaping the hæmorrhage there would still remain for them the danger of perforation.

Hæmorrhage is well known to be a danger of the later period of the disease when ulceration is far advanced; thus, of my 31 cases 12 occurred during the third week of the

fever; of these 7 were fatal, 4 *of them by the direct effect of the bleeding,* while 17 cases occurred after the third week, 8 of them fatal, though only 3 of these lost their lives by hæmorrhage directly. Hence, it would seem that it is among the earlier rather than the later cases of hæmorrhage that we might hope for the best results from transfusion, for these more often die by hæmorrhage alone, and they are also less likely to perforate, the ulceration presumably being less advanced.

But no general law can be deduced from statistics that will help us in this matter; each case must be judged upon its own merits. Whenever hæmorrhage occurs of sufficient severity to greatly increase the pulse rate and to produce well marked anæmia, the question of transfusion would present itself to me. If the hæmorrhage was so severe as to place the patient's life in immediate peril, and the blood was obtainable, I should be disposed to operate directly; if not so severe as this, it would be well to wait for a day and watch the power of recovery; if the pulse rate continued greatly increased, say, having risen from 110 to 130 it remained there, and the anæmia was well marked, I should propose the operation.

In the case of smaller hæmorrhages I should wait for their repetition; if these occurred, again taking the pulse rate and general condition as my guides, I should advise the operation as soon as the patient was losing ground to a dangerous extent.

The advantages obtainable by the operation are both immediate and remote:

1. Fatal exhaustion and syncope from loss of blood are warded off.

2. Time is thus afforded for recovery and for the action of remedies.

3. The patient is not allowed to remain in that condition of terible exhaustion and anæmia during which ulceration is so likely to progress rapidly in the intestine, and thus prepare the way for perforation or peritonitis.

4. It furnishes the patient, when most in need of it, with the best stimulant and food for his flagging heart and starved tissues that can possibly be provided, one that produces an immediate effect, without effort to his enfeebled digestive system.

Having arrived at a determination to perform the operation, the next question which presents itself is the choice of fluid to be transfused. Upon this point I need not dwell at any

length, for I regard the admirable report of Mr. Schäfer, made to the Obstetrical Society, and published in their *Transactions* for 1879, as a complete and final answer to this question. He clearly exposes the uselessness and dangers of saline solutions, milk, and the blood of the lower animals; while defibrinated human blood would appear to be especially contra-indicated for the present purpose, when an increased power of coagulation is so particularly desirable. I must confess, before looking up the literature of this subject, and more especially Mr. Schäfer's admirable report, I was much disposed to follow the example of Hasse and others, and to make suitable arrangements for a constant supply of sheep's blood for the purpose of transfusion, but the experiments of Panum, Landois, and Schäfer so conclusively prove the inutility and even danger of this practice that I have abandoned all thought of attempting it. The direct transfusion of human blood appears the only choice left to us.

There is one point in this connection which I should like to raise, it is how far the new blood introduced into the system of the patient is liable to infection by the typhoid germs, and thus to reproduce in itself the fever afresh, or, in other words, to cause a relapse? This question I suppose we are not yet in a position to answer, but it is noticeable in the charts of these cases that transfusion was followed on each occasion with a very considerable rise of temperature, though perhaps not more than the recovery from the collapse of hæmorrhage might account for.

Recently, Ponfick has recommended the *intra-peritoneal* injection of defibrinated blood in anæmia and other conditions of exhaustion; and following the same line, Kaczowski has published* the results of the injection of blood into the peritoneum under antiseptic precautions in six cases. From 200 to 500 c.c. were injected in these cases; no harm resulted from the operation, and in all but one improvement is stated to have taken place. The practice, however, does not commend itself to me, especially in such cases as the present.

As to the method to be employed, I would only remark that from the tediousness and difficulty of the operation in my own hands and in those of others whom I have seen perform it, and from the rapidity and ease with which it was accomplished by Mr. Cripps, I would strongly urge that whenever possible the assistance of a skilful surgeon should be obtained rather than that the patient and the donor should be

* 'Deutsche Med. Wochenschr.,' 1881.

submitted to the numberless risks of an awkwardly performed operation. I would also remark that when two persons are engaged in the operation, the most skilful should take charge of the arm of the donor, not only because his life at the time is the most valuable of the two, but also because the introduction of the cannula into his vein is by far the more difficult operation, on account of its distension with blood.

Finally, I would ask the opinion of the Society how far we are justified in submitting the donor to the risk of this operation in exchange for so comparatively small a chance for the patient. I have been unable to find any record of a fatal accident to the donor from phlebitis or any other cause, but we cannot shut our eyes to the fact that such an injury to a vein as this operation involves should not be lightly undertaken, nor is it justifiable at all, unless it be evident that great good is likely to accrue from it.

Transfusion in a case of typhoid fever must have a far smaller chance of success than the same operation under many other cirumstances. The operation is of course most frequently performed upon comparatively healthy people and to meet the emergency of a sudden loss of blood, the flow having been arrested and the danger unlikely to recur; thus, it may be resorted to after hæmorrhage from injury or during a surgical operation, or most frequently for hæmorrhages from the uterus during pregnancy or after delivery. In these cases, if the patient be rescued from the immediate danger, the probabilities of recovery are very good. In the present case it is far otherwise. The operation is performed after a long and terribly severe illness, when the patient's powers have been taxed to the uttermost and are now well nigh exhausted, yet he will probably have to fight through several more days of fever, even should he escape from the danger of perforation and peritonitis with which he is threatened. We can only expect at best but a small proportion of recoveries after this operation, perhaps one in every five or six cases in which it is undertaken, yet if we can save one in six, or even one in ten, of such cases by this means, it is surely a fair result to place against the danger to the donor, which, if proper care be taken, will be exceedingly small; and if a husband can save a wife, a father a child, or a sister a brother, by undertaking this risk, I would not gainsay them. Whether for a stranger another person should be allowed to incur the risk for the sake of a money payment is perhaps a more difficult question, but here I think the circumstances of the individual concerned must be taken

into consideration; if, on the one hand, the life in danger be a very valuable one, while on the other the donor is a single person, with no others dependent on him, and fulfilling no special duty to the community, then if for a consideration he chooses to undertake the small risk involved, I see no reason why he should be forbidden to do so, any more than that another should gain his bread by a dangerous avocation and often with less desirable results.

Before closing this paper, I should like to recall to the memory of the Society how much medicine, and therefore the whole civilised world, is indebted to the practice of vivisection for the knowledge of transfusion that has been obtained, at first by the classical experiments of Lower of Oxford, and in more recent years by those of Panum, Landois, Schäfer, and many others. Their experiments have proved for us, first, the value of the operation and its practicability; secondly, the relative values of the various fluids that have been suggested for use; thirdly, the dangerous effects of some of those that have been advocated for adoption; and lastly, the demonstration of the physiological advantages of the various methods of operation.

XI.—*Three Cases of Continued Fever, with Affection (infarction?) of the Spleen; in two of which an unusually high temperature was observed before death, and in one of which the symptoms during life led to the Diagnosis of Enteric Fever.* By Thos. Whipham, M.B. *Read November* 25, 1881.

LIZZIE R., æt. 20, a housemaid, was admitted under my care into St. George's Hospital, on May 18, 1878.

Her family history was clear.

For the last nine months she had been in service in a large establishment, eating meat four times daily, but drinking neither beer, wine, nor spirits.

She enjoyed good health. The catamenia were generally regular, but on the last occasion the period was deferred for a fortnight.

Five weeks before admission she began to suffer from headache; the pain came on gradually and had since increased in severity. A fortnight ago she took to her bed.

For nine days before she came under observation she had vomited after all food, the vomited matter being as a rule green.

She had lost flesh within the last few weeks, and had sweated profusely at intervals.

The bowels had been confined for six days; previously they had been regular.

On admission the patient was very anæmic, slightly jaundiced, but well nourished; her skin was cool; she had severe frontal headache.

Her tongue was tremulous, coated white towards the margins and brown in the median line. Her appetite was bad.

The pulse was 80, weak. Respiration 24, regular.

She had no cough.

She was sick after all food; the vomited matter was green.

The motions were greenish-yellow.

The lower part of the chest on both sides was dull, the dulness commencing about the level of the fourth rib, and extending to the lower margins of the last ribs. On the left side this dulness terminated about an inch to the outer side of the nipple.

The urine contained bile, was acid, but not albuminous.

She complained of tenderness in the epigastrium.

She was ordered Hydrarg. Subchlor. gr. iij at once, with a view of checking the vomiting, and this was followed in three hours by a senna draught. In addition a mixture containing bicarbonate of soda and hydrocyanic acid was prescribed, to be taken thrice daily. Her diet was milk and beef tea.

On the 20th the bowels were moved for the first time; she had not vomited since admission, but the headache continued.

May 22.—The sickness had returned; the bowels had not acted again; she complained of headache. The tongue remained as on admission. Pulse 88, weak; respiration 25. No abnormal chest sounds.

The senna draught was repeated, and the bowels acted in the evening; the motions were dark.

May 23.—The vomiting persisted, always after food; she slept badly. Pulse 96.

Next day the pulse had risen to 100, and as the vomiting was unrelieved and the bowels sluggish, the calomel and black

draught were repeated, and she was ordered an effervescing draught of citrate of ammonia with three grains of carbonate of ammonia in excess every four hours.

May 28.—The bowels being still obstinate she took Pil. Hydrarg. gr. v at night, with the gentian and sulphate of magnesia mixture of the hospital three times daily. This had the effect of producing a free evacuation two days later, when the headache was greatly relieved. The mixture was therefore discontinued. The pulse at this date was 96, weak. She had no cough.

June 3.—A little dulness was detected at the right apex. Inspiration was deficient and wavy; expiration prolonged. Posteriorly the same physical signs were noted, and there was a twang with the voice.

June 4.—Less jaundiced. Headache slight. Vomiting; great thirst. Tongue white. Much less abdominal pain.

Next day the pain in the head had recurred with its former severity, and she still vomited, so a mixture of bicarbonate of soda, bismuth, and hydrocyanic acid was ordered every four hours.

The temperature had by this time gradually risen to 102° F. On the 7th the abdominal pain had ceased, and there was less headache. She had not vomited for 48 hours; the bowels had acted on the previous day; the chest sounds were unaltered; the urine was clear, but contained a trace of albumen. A soft systolic murmur was audible over the entire cardiac area.

June 9.—The vomiting returned, so the calomel and black draught were repeated. The pulse was 104. Temperature 101° morning; 102° evening. On the 11th the symptoms were unchanged, the jaundice was more marked, and there was some œdema of the legs. The dulness of the lower part of the chest remained as before, and the spleen could be felt, but was not especially tender.

She was ordered the compound digitalis pill of the hospital (gr. v) night and morning.

June 14.—Sickness had recurred every morning and she complained of a feeling of soreness in the abdomen generally, and tenderness in the epigastrium. The heart's apex was felt in the 4th left interspace, about half an inch above the nipple. The systolic murmur was harsher and its point of maximum intensity was in the second left interspace and over the third rib; the murmur could be traced into the left axilla. The bowels were still costive.

From this date the patient became gradually worse; *i.e.*

the pain in the head increased in severity, the bowels remained inactive, and the vomiting persisted in spite of remedies.

On June 25th she was suddenly attacked with intense pain in the left iliac region. The pain came on in the afternoon and was so excruciating that the patient never ceased screaming till her death at 7 P.M.

The examination of the body was made 42 hours after death.

The lungs were congested and œdematous.

The pericardium contained three quarters of a pint of bright yellow fluid. The heart was natural.

The liver weighed 51 oz. and was somewhat fatty.

The spleen weighed 12 oz., was very firm, dry, and congested; it was of a dark purple colour, and its surface showed irregular mottling, corresponding to a few yellowish white masses in the tissue, of irregular shape, giving the general impression of infarctions.

The spinal cord was not examined, but the other organs were natural.

CASE 2.—Julia P., æt. 21, a domestic servant, was admitted into St. George's Hospital, under my care, on June 13, 1878. She had been singularly free from disease, in fact she stated that, with the exception of chicken-pox when a child, she had never been seriously ill. She had at intervals been subject to frontal headache.

She was in perfect health until June 9th, when she took a warm bath; the catamenia came on at once, but ceased in about three hours, and she was then attacked with abdominal pain, chiefly in the hypogastrium, and also in the leg and in the back. These symptoms became much worse on the afternoon of her admission.

So far as the family history was concerned, it was elicited that she had lost two of her brothers ('or sisters') from phthisis, and that one sister was said to be suffering from that disease at the date of her own admission into hospital.

On admission.—The patient was sallow and anæmic, but well nourished.

She complained of much pain and great tenderness in the abdomen; the slightest touch excited spasmodic contraction of the muscles. The tenderness was referred chiefly to the epigastric and inguinal regions, but the parietes of the abdomen moved freely with respiration. She expressed herself as being relieved by firm pressure on the abdomen.

The bowels had acted regularly up to the time of her admission.

The tongue was clean, but rather red.

Examination of the chest was in all respects satisfactory.

The pulse was 60, regular, but weak. Her intellect was quite clear, her temperature normal, and her urine natural.

No tumour could be felt in the abdominal cavity.

Warm fomentations were ordered to the belly, and a dose of castor oil prescribed for the morning.

She was sick in the evening, and next morning early she took the castor oil, which was immediately rejected; she subsequently retched, but did not vomit much.

June 14.—The patient was much in the same condition, and, being very restless, was ordered a mixture containing Potass. Bromid. ʒss and Potass. Nitrat. ℈ss, every four hours; opium fomentations and two pills of calomel and colocynth at night.

On the 17th, as the bowels were still obstinate, a senna draught was ordered. The pains in the back and legs persisted, and when in the erect position she complained of pain in the abdomen. Her pulse was 80, small. She remained much in the same state for the next four days, and as the pulse was quiet, the temperature and respirations normal, she was ordered to get up. The bowels had acted freely.

On June 24th, although the abdominal pain persisted, the tenderness apparently diminished while her attention was diverted.

On the 28th symptoms apparently more decidedly hysterical declared themselves; *i.e.* she had fits of alternate laughing and crying, and when she attempted to walk she fell helpless on the floor. The vomiting had ceased; she complained of pain at the top of the head; the bowels were kept open by senna and sulphate of magnesia.

July 1.—She had sore throat; the mucous membrane was red and swollen; the tongue coated with a thick white fur; the pulse 104, but the temperature was normal.

On the 3rd the pulse had fallen to 72; the tongue was still coated, the temperature normal, and the abdominal pain and tenderness were entirely gone. The urine was high coloured, but contained no albumen. The patient had by this time become delirious, and was so noisy that she was on the following day removed to the separation ward. She was ordered a mixture containing bromide of potassium (℈ij), tinct. sumbul (ʒj), and laudanum (♏v), three times daily.

July 5.—She had slept well, and was inclined to be drowsy, so the medicine was discontinued. She had a vacant expression, and did not appear to understand all that was said to her.

The tongue was still much coated, but the temperature was normal and the pulse only 94.

The catamenia appeared next day.

On the 6th, as she seemed rather low, 2 oz. of brandy were ordered, and as the bowels were very costive an oily enema was given, and subsequently Pil. Hydrarg. cum Rheo ℈ss.

On the 7th she was still very sleepy and vomited occasionally. Pulse 72; temperature normal.

July 8th.—A remarkable change took place; at 1 P.M. the temperature rose to 101·6°, and the pulse to 108; the skin felt very hot. Examination of the chest revealed nothing abnormal. An ice bag was applied to the head, and next day, as the bowels were confined, she was ordered Hydrarg. Subchlor. gr. iv, with Pulv. Jalapæ comp. ℈ss, but was unable to swallow it.

July 10.—The face was dusky; the tongue moist, with a thick white coat. Pulse 140; temperature 104°; respiration 72. The pupils were somewhat sluggish. She was quite unconscious, but showed signs of pain when firm pressure was made over the abdomen. The bowels had not acted, so the oily enema was repeated.

The patient gradually sank, and died at 9.35 A.M. on July 11, the temperature having risen to 109° Fahr. shortly before death.

At the post-mortem examination (26½ hours after death), congestion was found of both lungs, but no consolidation; the uterus and ovaries were congested, and in the cavity of the former was some bloody mucus.

The spleen weighed 6 oz., and throughout its substance were a few circumscribed dark-red patches, which contrasted strongly with the general brick-red colour of the organ.

The brain and spinal cord were perfectly natural, save that they were in some degree softened by decomposition.

There were one or two fatty patches in the liver. The remaining organs were natural.

CASE 3.—Mary H., æt. 26, no occupation, was admitted into St. George's Hospital on Nov. 24, 1880.

Her family history was good.

About 14 days previously to her admission she had been seized with diarrhœa and sore throat. She applied as a casual

patient, but refused to come in. She was therefore ordered Pulv. Ipecac. co. ℈ss at once, to apply a poultice to the throat, and to take the quinine mixture (gr. ij) of the hospital three times daily.

She patient's condition, however, became rapidly worse, but she did not take to her bed till Nov. 22.

When she came under observation she was evidently seriously ill; her countenance was dull and heavy, her eyes half closed, the abdomen was greatly distended, and there was much tenderness in the iliac fossæ. Her lips were parched and dry; her tongue coated and tremulous, but moist. She had a little cough, and her respirations were 32 in the minute; her pulse 112, weak and compressible.

The first sound of the heart was rather loud and sharp; there was a soft systolic murmur over the pulmonary artery.

Rhonchus was audible all over the front of the chest, but there were no moist sounds.

She was ordered Acid. Sulph. dil. ♏x, Inf. Ros. ℥iss, 6 tâ quâque horâ. Two ounces of brandy in the evening, with strong beef tea and milk as diet.

Nov. 25.—One or two rose-coloured spots, indistinguishable from the characteristic eruption of enteric fever, were found on the abdomen. The bowels were open once, the motion being liquid and ochrey. She was delirious, with a compressible pulse of 112, and respirations 48 in the minute.

Nov. 26.—Two motions similar in character. Delirium persisted; the lips were dry; the patient looked very ill. A few fresh spots, one of them petechial. Coarse moist sounds were audible over the chest in front and behind; the first sound of the heart was short and sharp.

The brandy was increased to 8 oz., aud a mixture containing Quin. Sulph. gr. iij, Acid. Sulph. dil. ♏x, was ordered every four hours.

Nov. 27.—Patient somewhat improved, though still slightly delirious. The tongue was cleaner. Pulse 120; respiration 40. Profuse sweating. Diet:—milk, 4 pints; strong beef tea, 1 pint. Bowels open five times during the day. Abdomen distended and tympanitic.

Nov. 28.—Profuse sweating. The bowels during the night and day acted six times, the character of the motions being unaltered. She was delirious in the early morning. The urine was drawn off, as she had passed none for some hours. Some subsultus. Pulse 104; resp. 40; coarse râles over the chest s before. Tinct. Hyos. ʒj, Ammon. Bromid. ʒss, Aq. Menth.

Pip. ℥iss, hâc nocte, with a starch enema containing a drachm of laudanum. The brandy was increased to 12 oz.

Nov. 29.—Patient in a profuse perspiration; lips dusky; tongue dry and thickly coated; sordes on the lips, teeth, and gums. Eight motions during the night and day, two of which were quite green. The night draught was repeated, and the opium enema at 10 P.M. The urine was again drawn off, sp. gr. 1019, dark coloured and albuminous; it was somewhat turbid from mucus, but became clear after the deposit had settled.

Nov. 30.—No better. The face was more dusky and the alæ nasi acted forcibly at each inspiration. Chest full of coarse râles; much cough, but little expectoration. Tongue less dry. She only slept half an hour during the night; still delirious. Bowels acted nine times during the night and day, motions green; abdomen tympanitic. Pulse 144; respiration 44. The patient had scarcely any sleep. Tremulous movements of arms and hands. Brandy increased to 14 oz. The enema was repeated at 7 P.M.

Dec. 1.—Profuse sweating. Delirious all night; no sleep; subsultus tendinum. Pulse 168, running; respiration 46, shallow, with dilatation of alæ nasi. Bowels open nine times during the night and day.

She died at 4.15 P.M.

About 10 minutes before her death the pulse had dropped somewhat, and her respiration fell to 32 in the minute, and her temperature rose to 108·6° Fahr.

The examination of the body took place 22 hours after death.

The body was fairly nourished, but very pale.

The brain weighed 50 oz., but, with the exception of a slight excess of fluid under the arachnoid, was healthy.

Both lungs were much congested, the bronchial tubes were full of mucus, and there was some emphysema on both sides.

The cardiac walls were soft and pale; the apex was slightly encroached upon by fat; the valves were healthy.

The liver weighed 3 lbs. and was fatty.

The spleen weighed 16 oz.; in its substance was a large infarct partially broken down in the centre; the tissue of the organ was otherwise diffluent.

The kidneys weighed 12 oz., their surfaces were somewhat mottled, they were healthy.

The intestines were extremely anæmic; the solitary glands

were unusually conspicuous, but there was no other abnormality. Their contents were fluid and bright yellow.

The genital organs were healthy.

The first of these three cases was from first to last extremely obscure, so much so that no diagnosis was made during life. The inordinate consumption of meat previously to her admission, and the persistent vomiting when she came under observation, suggested the diagnosis of gastro-duodenal derangement.

The natural appearance of the stomach and intestines after death proved this opinion to have been erroneous.

It is a remarkable fact in connection with a case in which the symptoms during life were so severe that the post-mortem evidence of disease was so slight. The affection of the spleen, so far as the infarctions were concerned, in some degree resembled pyemia, but the dry and firm condition of the unaffected parts of the organ tends to dispel any such idea. Supposing the yellowish white masses found in it to have been in reality infarcts, they must, in the absence of any cause leading to embolism, have been the result of thrombosis.

Both the nature and origin of the disease are equally obscure.

Diagnosis in the second case (Julia P.) was also obscure. It will be seen that the temperature was the most extraordinary feature in the case. It was somewhat raised at the time of the patient's admission, but on the morning of the third day it had fallen to normal. During the 19 following days the temperature remained below 98°, and on one occasion fell as low as 96·6° F. On the 23rd day of the patient's residence in the hospital the temperature suddenly shot up without any evident reason, and on the morning of her death, three days later, it had reached 109° F.

The symptoms appear to have commenced with a sudden stoppage of the catamenia four days previously to her admission; and to the irritation of the uterus and its appendages were ascribed the elevation of temperature, the abdominal and crural pains, and the occasional vomiting. The subsequent attacks of laughing and crying, together with the alleged inability to use her legs, tended to confirm the idea that the girl was hysterical, and it was not until the development of the maniacal symptoms on the 19th day after her admission that the case could be considered in any degree serious; even then for the next four days there was neither elevation of temperature nor acceleration of the pulse. As in the previous

case, the results of the post-mortem examination were unsatisfactory. The lungs were congested, but no consolidation existed, and the only evidence of the disease was found in the spleen in the form of circumscribed dark-red patches, which contrasted strongly with the brick-red colour of the rest of the organ.

Case 3 (Mary H.) is remarkable from the similarity which it bore to enteric fever. So great was this similarity that during life no doubt was entertained by those who saw the patient that she was suffering from that disease. One of its symptoms, viz. the characteristic eruption, was to all appearance present in this case; the spots on the abdomen were indistinguishable from those of enteric fever, and as in this fever, the eruption, although scanty, appeared in successive crops. The abdomen was tympanitic and distended, the motions had the characteristic ochrey colour, and there was tenderness chiefly in the iliac fossæ.

As has been already stated, no evidence of disease could be found in the intestinal tract, and, with the exception of some congestion of the lungs, the only lesion was the softening of a large mass in the spleen, which resembled an infarct.

Actual suppuration of the spleen had only occurred in this one instance, and the remarks of Cornil and Ranvier, in vol. iii, p. 985, of their *Manuel d'histol. Pathologique*, with regard to the frequent difficulty attending the diagnosis of this condition, seems to be particularly applicable to Case 3 above recorded :—"Dans un petit nombre de faits, on ne sut à quelle cause attribuer des abcés spleniques observés à l'autopsie, et qui avaient donné lieu pendant la vie à des accidents febriles d'une grande intensité."

The exact nature of the disease in all three cases is extremely obscure. Two explanations suggest themselves, viz. : 1. Blood-poisoning, or; 2. Local inflammation of, or in the neighbourhood of the spleen. In Case 1 the former theory seems to be negatived by the remarkably firm condition of the spleen. In Case 2 no mention is made in the records of the post-mortem examination that the spleen was in any degree softer than natural. In Case 3 the evidence would rather point to inflammation of or in the immediate neighbourhood of the spleen as the cause of the malady.

In none of the three cases could any history of the ordinary causes of acute inflammation of the spleen, viz. injury, blood-poisoning (as in enteric fever), or malarious influences be discovered. The three patients were domestic servants

living in London, and in the record of the cases it will be noted that they were nearly of an age (20, 21, 26 respectively), and that they had all enjoyed a remarkable immunity from ordinary ailments.

It is a matter for regret that microscopic examination of the spleen was omitted. In the last case (Sarah H.) it was intended that such examination should have been made, but the decomposed and diffluent condition of the organ at the time of the autopsy rendered it useless for further investigation.

The possible connection of such cases with those in which fever occurs in the lower animals naturally suggests itself.

Dr. Greenfield, in his recent lectures at the University of London (*Lancet*, 1880, p. 866), states that in his experiments on animals inoculated with fluid containing bacilli of anthrax, there was at first a rise of temperature (2°—3° Fahr.), and usually a fall of one or two degrees before death. This Dr. Greenfield explains by assuming that the bacilli subsist upon the oxygen of the blood, and that with the multiplication of these organisms oxidation is reduced, while the temperature falls.

Having regard to these observations, it is interesting to note that of the three above recorded cases two had an unusually high temperature (109° Fahr. and 108·6° Fahr.) before death, while in the other one the temperature, though not reaching so high a point, had a very decided upward tendency at the last.

This fact, and also the firm state of the spleen in one, if not in two of the above cases, tends rather to exclude these cases from that class of fevers in which organisms are found in the blood.

It may be that they are instances simply of infarction of the spleen; if so, it is difficult to discover any reason for the blocking of the vessels. Moreover, such severe symptoms and death seem barely accounted for by the slight manifestations of disease found after death in two out of the three cases.

The literature on this subject is more or less blank; this fact and the rarity of the cases themselves was a sufficient reason for bringing them under the notice of the members of the Clinical Society.

XII.—*On a Case of Talipes Equino-varus treated by Resection of a portion of the Tarsal Bones.* By WILLIAM H. BENNETT. *Read Dec.* 9, 1881.

THE operation for the relief of talipes by the removal of a portion of the tarsus has become a recognised surgical procedure, but there is reason to believe that it is still looked upon by some surgeons with a certain amount of distrust. I venture, therefore, to bring the following case under the notice of this Society, as it seems likely to afford some further evidence of the utility of this form of treatment.

J. M., a man, æt. 47, a clerk by occupation, was admitted into St. George's Hospital, under my care, on June 25, 1881, with the following history:

He had been lame from birth, and when three months old was placed under surgical treatment, but nothing more than bandaging and manipulation seem to have been resorted to, and no good resulted. Considerable deformity followed, and three years later the tendo-Achillis, and he thinks some other tendons, were divided by Mr. Adams, of Dublin. For a time there was some improvement but ultimately, either from neglect on the part of his parents, or from their inability to afford the necessary care, the deformity assumed its previous condition. No further treatment was sought, and for 35 years he had been walking, or rather limping, with the deformed limb, wearing an ordinary boot, padded and adapted by himself.

The deformity had been gradually increasing, and although at times able to walk six or eight miles, he had been, as a rule, almost incapacitated from taking exercise by the extreme pain caused by a huge corn which had formed on the outer side of the deformed foot.

The distress caused by this pain, the increasing lameness, and the mental depression produced by the existence of the deformity, induced him to come to the hospital fully prepared to submit to any treatment whatever, begging, at the same time, that if nothing else could be done the limb might be amputated.

On admission.—The patient appeared strong and healthy although somewhat prematurely aged. He hobbled about in an unsightly manner, and at times evidently suffered pain in placing the deformed foot on the ground. The left lower limb was much wasted, shortened 2 inches, cold and ill

nourished; the muscles were flabby and weak. The foot was in a condition of extreme talipes equino-varus. The heel was considerably drawn up and inverted. The sole was twisted inwards to such an extent that its plane was almost vertical, so that the patient walked entirely upon the outer margin of the foot, in consequence of which the skin over that part had become enormously thickened, and there was great tenderness on pressure from the formation of bursæ beneath the thickenings.

The toes were distorted and much compressed.

The whole foot was so rigid and unyielding, that no alteration in its shape could be produced without very great force, a condition which negatived the possibility of any relief from tenotomy or any mild form of treatment.

After a consultation, with my colleagues it was determined to resect a portion of the tarsal bones.

Operation.—On June 30, the patient having been anæsthetised and the limb rendered bloodless by Esmarch's bandage, a flap, including all the soft parts, was turned back from the dorsum of the foot, and the mid-tarsal region freely exposed. With a sharp chisel as much of the tarsus as seemed necessary was chipped away piece by piece until the anterior part of the sole could be placed in a perfectly horizontal position. In order to prevent any possible dragging upon the parts, the tibialis anticus, posticus, and flexor longus digitorum tendons were divided, and afterwards, in order to allow the heel to be brought down, the tendo-Achillis was freely cut. The pieces of bone removed were not preserved, but they included the whole of the cuboid and scaphoid. A drainage tube was introduced, the wound brought together with silver wire and the limb placed upon a straight splint with a foot-piece. The operation was performed strictly antiseptically, and the wound dressed in the same way.

No rise of temperature occurred, nor was there any pain, the patient expressing himself on the following day as well as he had ever been in his life.

The dressings were not changed till July 8, when a little oozing from the margin showed itself; although the dressings were found full of discharge, there was not the least sign of decomposition, and a blood clot, which blocked the canal of the drainage tube, was entirely unchanged. The wound had completely healed excepting at the extremities where the drainage tubes lay; there was no swelling or redness and little or no tenderness. The foot was in excellent condition.

The rapidity with which the case progressed was quite remarkable, by July 28 the whole wound had healed excepting a small sinus at the outer part, from which the drainage tube had been removed two days before. The union between the bones was extremely firm. Unfortunately, at this time great irritation occurred about the foot and leg, apparently from the continued use of the carbolic acid, which was consequently omitted.

On Aug. 4 the foot was attacked by erysipelas, diffuse cellular inflammation followed, which necessitated the opening up of the cicatrix. All union between the bones gave way, and so great was the swelling that at one time it seemed likely that extensive sloughing would take place. At the end of a week (Aug. 11) the cellulitis began to subside, but the foot was in such a bad position and so infiltrated that it was feared that amputation might ultimately be necessary. On Aug. 18 the condition had so much improved that the foot could be placed on a splint with the anterior part of the sole quite flat, but the wound was foul and sloughy, and there was no union whatever between the bones. Some sloughing of the tissues over the heel followed but to no great extent. The wounds were frequently cleansed with carbolic solution and dressed with oakum.

From that time the progress of the case was uninterrupted and the wound granulated healthily, the position of the foot remained good but not so perfect as before the attack of erysipelas. By Sept. 8 the wound had healed soundly and the limb was put up in plaster of Paris, which, however, had soon to be removed on account of the swelling.

On Oct. 6 the patient was allowed to walk with crutches, the foot being fixed on a splint. On Nov. 3 he was provided with a boot with iron supports in which he now walks with ease.

Present condition (Nov. 21).—The left foot is somewhat shortened. The anterior part of the sole is as nearly as possible flat, and in standing and walking the patient plants it firmly on the ground. The heel is still somewhat inverted, but when the patient is in the best position can be made to touch the ground. The union at the point where the bones were resected is very firm, but not bony, as on careful manipulation some elasticity can be made out. There is as yet no power of voluntary movement in the ankle-joint, but the toes can be slightly moved, which was not possible before the operation. The patient states that the limb feels altogether stronger, and

it seems not unreasonable to anticipate some recovery of the power of voluntary movement about the ankle.

The gait is now altogether better than on admission, and is gradually still improving.

(The patient was exhibited to the Society.)

Remarks.—The result of this case may, I think, be fairly looked upon as successful, especially when the unfortunate occurrence of the attack of erysipelas is taken into account. It seems, also, to demonstrate that in certain cases of talipes the operation of resection of a portion of the tarsus is not only justifiable but desirable.

The case itself seems to have been one peculiarly suitable for the severe form of treatment adopted, inasmuch as the long continuance of the deformity and the age of the patient, which is, I fancy, greater than in any previously recorded case operated on, rendered relief impossible by any milder procedure.

In the cases published, I am unable to find any record of the nature of the union between the bones following the operation. In the patient now brought before the Society the union is firm but I believe not bony, and it is, I think, a question of interest as to which is preferable, a union of this kind or a bony ankylosis; for my own part I am disposed to think the fibrous uniting medium, so long as it is sufficiently firm, the more desirable, inasmuch as it allows some amount of elasticity in a part where a joint is naturally provided.

In conclusion, I beg to submit that the operation is one of extreme severity, and although it has in a certain number of cases proved successful, it should only be resorted to in those cases of talipes which from neglect have advanced too far to be relieved by any less severe measures, or in those which have been subjected to all the ordinary methods of treatment without success.

XIII.—*Two Cases of Myxœdema, Male and Female.* By John R. Lunn. *Read Dec.* 9, 1881.

I HAVE ventured to bring these two cases before the Society, since they are typical instances of a somewhat rare disease, especially in the male. Former cases have been described by Sir William Gull, Drs. Ord, Duckworth, Sémon, and others.

The two cases were exhibited by me at the last meeting of the Society.

Case 1. Male.—G. M., æt. 47, father and mother dead, cause unknown. By trade a milkman, married, and the father of four children, all of whom are well.

Past history.—No history of syphilis or intemperance to be obtained. Says he had rheumatic fever 26 years ago. Has always been a steady, hard-working man. His head was cut open in 1879 by an accident. Was a policeman from 1861—1867. Says he has only been for two years in present condition.

Present condition (of which he is aware).—A tall man, weighing about 16 stone. Well nourished. All his movements are slow and clumsy. Walks very slowly, and with a tendency to fall forwards; says, however, that he walks better in the summer than in the winter.

Skin dry, harsh, and translucent; does not pit on pressure.

The whole of the face is puffy, especially under the lower lids, suggesting renal disease. Several moles are scattered over the face; nose very much flattened.

Lips thickened, teeth good, breath offensive. Hearing and smell not very good; articulation slow, with a nasal intonation. Speech blurred and somewhat indistinct, as if he had something in his mouth.

Hair on head thin and falling away on the vertex; thin on the pubes, none on axillæ.

When spoken to he gets flurried and flushes up. Sight dim; no apparent disease of fundus, with ophthalmoscope. Fulness about the supra-clavicular region. No thyroid gland to be felt.

Very sleepy and drowsy; always feels cold; never perspires; temperature subnormal, 96—97·2° F. both sides of body being the same. Pulse 80; respiration 18. No anæsthesia or hyperæsthesia of extremities, patellar reflex normal.

Taste good; though he takes longer to detect salt when placed on the tongue than sugar.

No chest symptoms; heart sounds weak; no apparent cardiac disease. Appetite good; always wishes for food the middle of the night. Nausea and retching of mucous and wind.

Urine.—Amber coloured, sp. gr. 1015, contains a trace of albumen; no sugar; no apparent increase of urea with HNO_3.

The interesting feature in this patient is that, when admitted (July 1881) into the Marylebone Infirmary, Notting

Hill, he had no delusions, but during the last few weeks he has developed some. One was a belief that all the patients were swearing at him; another, that the next patient had stolen from him all his money in the bank.

He gets up very often during the night and puts his bed into the middle of the ward, as he thinks that some one is tormenting him by speaking through the wall and so preventing him from sleeping.

Postscript.—Since writing the above I have made the following additional observations:—He passes 34—38 oz. of urine daily, averaging 5·72 grains per ounce of urea, equal to 194·48 grains the 24 hours, showing a decrease. Also the urea varies with the albumen, some days there being a trace of it on others none.

I am indebted to Dr. Coxwell, house-physician at St. Thomas's Hospital, for kindly testing the amount of urea for me.

Case 2. Female.—The second case is our engineer's wife whom I am attending. Thinking that the Society would like to have the two allied cases together in a male and female, I have taken the liberty of showing her to this Society; she having very kindly consented to come up.

Family history.—Mrs. J., æt. 45, the mother of eight children, four of whom are dead, cause unknown. She has had five miscarriages, from two to five months pregnant. No history of syphilis or intemperance.

Past history.—Has always been a steady and hard-working woman. "Twelve months ago," she says she began to swell, and noticed that she could not keep her hands and feet warm, that her eyes tired when she read, and that she grew very drowsy at times, especially during the day, accompanied with restless nights.

Present condition.—Has the appearance of a cretin. Looks as if she had renal disease and seems very drowsy. Movements of locomotion very slow. When she opens her mouth her lips seem to extend horizontally. Hands look puffy; very harsh and dry. Never perspires. Teeth not good. Alæ nasi thickened, nose flattened. Always feels the cold; temperature very low, 97·4—95° F. Pulse slow, 76; respiration 18. Taste good. Hair dark, thick at sides, though leaving the vertex; gone from axillæ and pubes.

No thyroid gland to be felt. Supra-clavicular regions puffy; hearing not good; eyesight very indifferent at times.

Cheeks soon flush up if at all put out. Appetite fairly good; bowels regular. Slight hyperæsthesia of whole body when pricked with a pin.

Chest.—Slight bronchitic signs.

Heart.—Sounds normal, though feeble.

Uterus.—Soft, otherwise normal.

Urine.—Amber coloured, sp. gr. 1020, vesical epithelium, distinct trace of albumen, no sugar, no increase of urea to be made out by rough test with HNO_3. The quantity of urea in one ounce is 6·78 grains.

Catamenia stopped, summer of 1880; and since then she has been in present condition.

On Nov. 25 had severe attack of hæmorrhage from the uterus which confined her to her bed. No apparent disease; *i.e.* climacteric.

The woman, like the man, suffers from bad dreams. For example, she dreamt that a man's head was cut off by her bedside. She has, however, no delusions, and her senses are quite clear when spoken to.

XIV.—*Two Cases of Myxœdema.* By John Cavafy, M.D. *Read Dec.* 9, 1881.

CASE 1.—Fanny Earl, æt. 59, married, was admitted into St. George's Hospital under my care on August 31, 1881. No history could be obtained of physical or mental disease in her family. She was born at Guildford, and lived there till her marriage at the age of 25; she then removed to Cheam, where she has resided ever since. She had had six children, all of whom she described as healthy, and four miscarriages, which did not occur consecutively. The last child was born twenty-one years ago, and there had been no miscarriage since. Menstruation was normal, the catamenia ceasing at the age of 45, without morbid symptoms. Her habits were always temperate, she lived an active and healthy life, was in comfortable circumstances, and there had been no mental distress or trouble. Nine years ago she attended the Ophthalmic Hospital at Moorfields for some affection of the eyes, from which recovery was complete. A little later she began to suffer from a variety of symptoms, chiefly dyspeptic,

flatulence, spasmodic epigastric and abdominal pain, flushing of the face and coldness of the hands and feet, with general weakness. The affection, however, was not constant, and she did not consider herself very ill. Five years ago a living frog was thrown at her by a small boy and struck her on the face; she had a peculiar detestation for these animals, and received a great shock, which she believed was the starting point of her present complaint. From that time she began to feel unaccountably weak, unfit for exertion, and very low-spirited; the symptoms gradually progressed, and she became very nervous and weaker, walking very slowly and with difficulty; the hands became somewhat swollen, so that she could not take off her wedding-ring, which she could do easily before, and the cheeks became permanently flushed. Swelling of the face did not attract attention until about two years ago, when it was noticed by her friends, and about the same time her hair, which was soft and abundant, began to fall off copiously. Her mental languor increased, her temper became irritable, and her speech slow and nasal. She did not think she had varied much in the last two years, during which the disease had become fully established; there had been intervals of apparent improvement, and again times when she had felt very ill, with vertigo, faintness, dyspepsia, and diarrhœa, but on the whole she had been stationary.

On admission she was a dark-eyed, brown-haired woman of middle height. The hair of the scalp, over the vertex chiefly, was very scanty, and the eyebrows and eyelashes had also largely fallen. The face was moderately swollen over the supraorbital region, nose, and cheeks, and less so in the eyelids, chiefly near the outer canthus; the lips, the lower one especially, were considerably swollen, so as to obliterate the normal wrinkles of the red part; the nostrils were large and fixed, owing to swelling of the alæ nasi. Over the upper part of the forehead there were numerous transverse wrinkles; but the supraorbital ridges, nose, the upper two thirds of the cheeks, and the chin, were very tense, smooth, and shining; the skin was looser over the lower jaw, and formed a kind of pouch-like swelling under it. Over the scalp and wrinkled portion of the forehead the skin was dry, yellowish, with patches of light brown pigmentation, and rather rough from branny desquamation; the tense and swollen parts were waxy and semi-transparent in aspect, with a bright patch of capillary and venous dilatation on the cheeks, and a duller red congested patch on the chin; the lips were of a purple red

tint. Passing to the neck, the skin was found loose, slightly thickened, wrinkled, rough and desquamating, and of a dull brick-red colour; over the trunk and greater portion of the upper and lower extremities the skin appeared fairly normal, with the exception that it was dry and somewhat harsh to the touch, perspiration and sebaceous secretion being evidently very deficient. The hands showed the characteristic alterations of the disease; they were broad, thick-fingered, and clumsy, and the wedding ring occupied a deep circular furrow; the enlargement appeared to be due to a swelling of the deeper tissues rather than of the skin itself, which could be easily pinched up over the backs of the hands. In this situation it was rough, dry, desquamating, and of a dull purplish-red tint, which extended for some distance up the forearms; the feet were also somewhat swollen on the backs and around the ankles, but they did not pit on pressure, and were not discoloured. Her facial expression was somewhat dull and listless, the raised eyebrows only giving her a rather surprised look. Speech was slow, monotonous, somewhat indistinct, and nasal, and a considerable interval elapsed before she answered a question. Her gait was awkward, the body being bent forwards, and the movements of the legs slow; this did not seem to be due so much to muscular weakness as to nervousness and vertigo, which she felt especially on turning round. The knee reflex was diminished, and it was impossible to excite any disagreeable restlessness by tickling the soles; sensation was slow and blunted, nearly four fifths of a second elapsed between a pinch and its recognition, and she repeatedly failed to discriminate two points of contact eight inches apart on the leg and five inches apart on the arm, being very little assisted when the touches were not exactly synchronous; the special senses were normal, with the exception of slight presbyopia. The thoracic and abdominal viscera were normal, but pulse and respiration were very slow, the former being 46 and the latter 12 in a minute. The urine was of sp. gr. 1018, and contained neither sugar nor albumen. Mentally, apart from her slowness of manner, there was nothing wrong; she seemed a shrewd, fairly intelligent woman, of rather irritable temper. During her stay in hospital there was very little alteration; she kept her bed for the first week, but afterwards got up and sat at table for her dinner, and then pretty constantly by the fire, as she always felt chilly; she did not move about the ward much, but talked freely, and made acquaintances easily. On September 24 she

had a sudden attack of weakness and mental depression, with loss of appetite, and slight diarrhœa; she had also frequent flushings and sensations of faintness with slight pyrosis, and complained of frontal headache and some dizziness and confusion if she tried to sit up; she slept badly, but had no dreams. This condition lasted a week and was followed by a second attack on Oct. 9, when she was seized with general tremor after breakfast and again after dinner, with giddiness, flushing, flatulence, and diarrhœa; three days later she had returned to her usual condition. Her temperature was always subnormal, touching 98° on one occasion only, 96·5° being the average. The pulse was remarkably slow, the extremes being 42 and 60, and the average 48. The urine was scanty, not much more than a pint being passed in twenty-four hours. She was discharged improved on Oct. 17, feeling stronger, walking better, and having been able to draw off her wedding ring, which had been impossible for some years. I saw her again on Nov. 14, when she said that she felt fairly well, but her general condition was unchanged.

Case 2.—Sarah Stiles, æt. 33, married, was admitted into St. George's Hospital on Sept. 27, 1881. She had previously been an out-patient under Dr. Watney, to whom I am indebted for placing her under my care. She had lived at Lyndhurst in service from the age of 16 to 22, when she married (11 years ago) and has since lived in Chelsea. She had always been healthy and had five children; of these two were living and healthy, the other three died in infancy of convulsions. Five years ago, after the birth of a child (Plate IV, fig. 2), she began to feel very weak, and had some difficulty in walking; at the same time her eyelids were noticed to be rather swollen, and during the next year some slowness of speech became apparent. Since that time the symptoms had steadily increased; the face had become generally swollen, and the same condition had become generally established over the body (Plate IV, fig. 3), more especially affecting the hands and feet; all her movements became slow and awkward, and she had fallen downstairs on two occasions. She felt continually chilly, and wore the same thick dress all the year round, the skin being always dry. Her last child was born nearly three years ago, and died in convulsions, aged 11 months.

On admission she was a tall, awkward, rather stout woman, with dark brown hair and grey eyes. Her features were square and massive, without fine lines; the eyelids were much

DESCRIPTION OF PLATE IV, ILLUSTRATING DR. CAVAFY'S CASE OF MYXŒDEMA.

The drawings represent the patient (Sarah Stiles) at different stages of the disease.

Fig. 1, aged 23. Fig. 2, aged 28. Fig. 3, aged 33.

1.

2.

3.

R. Mintern lith.

Mintern Bros. imp.

Dr. Cavafy's case of Myxœdema.

swollen, the lower margins of the upper ones being especially tense, with a pearly semi-transparent aspect; the nose much broadened at the root, and generally swollen, with wide fixed nostrils; the lips were thick and large, the upper one prominent and somewhat everted, and the lower parts of the cheeks were much puffed. Her hair was still abundant, but had been falling off copiously of late, and was dryer and harsher than it used to be; the eyebrows were scanty and raised, and the eyelashes very deficient. There was a purplish flush on the cheeks and tip of the nose, and the lips were of a venous tint. The hands were very broad and clumsy, with thick, harsh, and branny skin, of a dull red tint on their backs; the skin of the arms and forearms was also rough, dry, and somewhat thickened, and the same condition was found in a lesser degree over the rest of the body; the legs and feet were decidedly swollen, but did not pit on pressure. Her expression was rather placid than dull, and her movements slow and awkward. Speech was monotonous, with a rather nasal intonation, but she answered questions readily, and more quickly than the first patient. Intelligence was unaffected, and there were no signs of irritability or suspicion. The special senses were normal; common sensation slow and a little dull, but she could generally succeed in distinguishing two points four inches apart on her legs. The knee reflex was diminished. She constantly complained of chilliness and numbness of the hands and feet; variable, she said, and accompanied by considerable mental depression when much felt. The heart, lungs, and abdominal organs were normal, but pulse and respiration slow; menstruation regular; urine normal in quantity, of sp. gr. 1020, and free from albumen. She remained in the hospital until Oct. 22, and during this time suffered from very little inconvenience except the feeling of chilliness in her hands and feet. She required an occasional purgative, but the appetite was good throughout, and there were no dyspeptic attacks. The pulse was constantly slow, varying from 45 to 65, and the temperature subnormal, but rather higher than in the first case, averaging 97·6°. She got up every day, and readily made herself useful in the ward, spending most of the rest of her time in sitting over the fire, and sewing slowly and clumsily; she was never suspicious or irritable, and made acquaintances without reserve. Since her discharge she has continued to attend as an out-patient, and has latterly not been so well, owing to grief from the death of one of her children from bronchitis about three weeks ago; the eyelids have

become a little more swollen, but no other change has taken place in her general condition.

Remarks.—In the first of the two cases I have brought forward, the nervous symptoms predominated, and preceded the swelling, which was only moderately developed; while in the second patient, on the other hand, the characteristic œdema and distortion of the features and hands was the most striking point, the nervous symptoms not being so marked. This seems to point to a primary central origin for the disease in the nervous system, to which the œdema and other phenomena are apparently secondary; the very slow pulse, which was found in both my cases, and the subnormal temperature, point in the same direction; that the latter condition is not dependent on the state of the skin is rendered probable by the fact that the temperature was highest in the second patient in whom the œdema was most developed. The sudden attacks of dyspepsia and diarrhœa which occurred in the first case, coming on without apparent cause, and quickly subsiding, bear some resemblance to the gastric crises which occur in locomotor ataxia.

XV.—*Myxœdema in a Man, with appearance of General Paralysis and Mental Irritability.* By William M. Ord, M.D. *Read December* 9, 1881.

A. W. H., æt. 42, railway clerk, was brought under my notice by the kindness of my friend, Mr. Crossman, of the Wandsworth Road.

Up to January, 1879, he had been a healthy man, but in that month he had a fit during the night, and was, according to his wife's statement, a "changed" man ever afterwards. His speech became difficult and imperfect, he lost power in his legs and arms, and became gradually swollen about the face and body. When I saw him in July, 1881, his face presented the appearance of completely pronounced and, indeed, far advanced myxœdema. All the features were swollen, the lower and upper lids, the nose and the lips about equally. The eyebrows were much raised, the cheeks presented a bright, sharply-bordered flush, and the skin was dry and translucent. The scalp was harsh and dry, the vertex bald, the hair on the

sides ragged, dry, and scanty. The teeth had mostly fallen out. There was imperfect movement of the right side of the mouth; the speech was slow, imperfect, and slovenly, the tone nasal. The skin over the whole body was dry and very harsh. The legs were wasted, and the hands were not much deformed. The abdomen was much enlarged, but no sign of visceral disease was detected.

He stated that he rarely, if ever, perspired. The temperature in the mouth was 96·1° He walked slowly, requiring the aid of sticks and of his wife. His head often fell forward on the chest. He stated that he often fell forward suddenly, his muscles giving way. He had no tremors when moving or resting. His memory was said to be impaired, but there was no other sign of mental disturbance save irritability and suspiciousness, things not existing in him before.

The thyroid gland was not enlarged; in fact, as it could not be felt at all, it was probably reduced in size. There were no marked supra-clavicular enlargements, but instead there were two projections at the nape, one on each side.

As regards the senses, the sight was somewhat impaired; he said that he sometimes had diplopia; hearing, no impairment; taste, indescribably nasty subjective sensations; smell, no affection; touch, no affection.

The urine was clear; its sp. gr. 1008; it contained neither albumen nor sugar, but gave a deep red colour with nitric acid.

The heart sounds were free from murmur, but the second sound was much accentuated at the base. The arteries were hard, the pulse small.

No history of alcoholic excess or of syphilis could be elicited.

December 8.—Weaker. Face less swollen; power of limbs still less; temperature 75·8°; mental state unimpaired. He was working at accounts for the South Western Railway when I called, and his writing was neat and clear. Skin much shrivelled everywhere, and abdomen probably increased in size. No ascites.

Remarks.—The conditions of the face, of the skin, of the thyroid, and of the urine, are such as belong decidedly to myxœdema. So, too, are the conditions of the mind and senses. The speech is, however, characterised by an addition of slovenliness and slurring to the ordinary slowness and difficulty. This, taken with the partial loss of power on the right side of the mouth, is suggestive of bulbar paralysis. No other signs of such paralysis, however, exist. The legs are wasted and so weak that progression is impossible without aid. This

condition, with the slovenly speech, is suggestive of general paralysis. The feet and hands fail to present the usual thickness and roughness. Some of the features making up the full picture of the disease are therefore wanting. These are of a secondary degree of importance. There are also additional or complicatory symptoms in the slovenly articulation and the paresis of the lower limbs. In another case, which was recognised as myxœdema by several other physicians as well as myself, the symptoms of bulbar paralysis were present in a much more decided form, and the patient died from sudden asphyxia. It is probable that these additions mark a special development of the myxœdematous change in the bulb, just as in other cases it is seen more in the skin, in others in the kidneys, &c.

XVI.—*A Case which presented the Clinical but not the Pathological characteristics of Myxœdema.** By James F. Goodhart, M.D.

WILLIAM F., a lighterman, æt. 46, was admitted, under the care of Dr. Wilks, into Guy's Hospital, on November 19, 1879. His father was asthmatic and two brothers have died of diabetes. He never touches beer or spirits. He was strong and healthy until four years ago when he was attacked by frontal headache and vertigo. Two days later he was seized with erysipelas and his face was swollen for some weeks. He has been subject to attacks of giddiness ever since, in one of which he fell into the water. A man who knew him on the river happened to be in the same ward at the same time, and said that once he was lost for three days and was found asleep on some barge or pier, and it appeared that he must have been asleep for most of the time he was missed. For four or five months his memory had failed him.

* Many of the details of this case have already been published by Dr. Mahomed in the *Guy's Hospital Reports*, 1880-81, in a paper entitled "Chronic Bright's Disease without Albuminuria." But the main interest of it is so essentially bound up with the disease called Myxœdema that the Council, on the recommendation of the Committee of Reference, has sanctioned its republication in the Transactions of the Society, an important addition having been made to the notes of the case since its previous publication.

Two years before his admission he had an attack of gout. He was admitted in a stupid cretin-like state, with defective hearing, bad memory, thick voice, and deliberate speech. There was much capillary congestion of his cheeks; and a thick skin, the swelling being more resistant and elastic than ordinary œdema. There were no gouty deposits, and his urine was sp. gr. 1020 without albumen or casts. His pulse tracing showed very high tension. After his admission he was noticed to be very drowsy. The eyelids of both eyes were very œdematous, though feeling more resistant than simple œdema. Subsequently he got worse, the questions asked of him needed to be bawled out before provoking an answer, and he spoke in a slow drawling manner. With this condition increasing upon him, he died.

Inspection.—The body was that of a large man with puffy appearance and very œdematous state of the eyelids. All the body puffy, but there was no dropsy. No pitting on pressure. In some parts, but by no means in many, there was a fluid, jelly-like material between the muscles, some of which was collected. It was mostly in the intermuscular septa of the thigh and about the pectorales. In the subcutaneous fat there was nothing abnormal. No excess. No œdema of any kind. The bones of the skull were a little thick and perhaps a little rough.

Brain.—Membranes healthy. Vessels all quite healthy except one part of the left vertebral, which was rather atheromatous. Weight of brain 51 oz. It looked remarkably healthy, but it cut with a peculiar toughness like cartilage in its resistance, and some parts more so than others, the right side of the cerebellum particularly so, yet nowhere with any appreciable alteration in structure. Parts of the medulla and brain were hardened and examined under the microscope, and showed a little thickening of, and cell growth around, some of the vessels, but nothing else abnormal. The retina in each eye was perfectly healthy.

Chest.—Each pleura contained a quantity of serum, and both lungs were much compressed by fluid; the left lower lobe was quite airless, and the right nearly so.

Larynx.—A little œdema of the ary-epiglottic folds. Nothing sufficient to cause any obstruction.

Pericardium.—Contained a good deal of serum, the serous membrane was thick and sodden-looking from the long presence of fluid in it. The *heart* weighed 15 oz. Its cavities, particularly the left ventricle, were thick and dilated. Free

regurgitation of water through the mitral followed distension of the ventricle, although the valve itself looked of normal size. The muscular tissue was of a peculiar appearance, being brown in colour and gelatinous. It looked juicy and streaked by a few fibrous bands. The valves and aorta were healthy.

Peritoneum.—The stomach and all the intestines were thickened from what appeared to be an œdematous condition. Just such a state as is often seen in old-standing ascites or renal anasarca, but in this case there was no ascites.

Liver.—92 oz. Dark reddish brown and firm, with a similar gelatinous translucency to that in the heart. No lardaceous disease. The microscope showed early cirrhotic changes and hyaline fibroid exudation.

Spleen.—6 oz., firm and dark coloured, in all respects like a spleen from a case of mitral disease.

Kidneys.—11 oz. The vessels were decidedly thick like those of a case of chronic Bright's disease, and the organs were indurated like those of heart disease, but, except in these points, they were quite healthy; their capsules being *thin,* their surfaces *smooth,* and their cortex in *full quantity.* They were hardened and examined microscopically, and no disease could be detected save a little thickening of the adventitia of the arteries.

Testes healthy.

Joints.—Both great toe-joints contained a little urate of soda. The knees showed senile coating of the central parts of the cartilage. Nothing wrong was to be noticed with the tendinous structures round the joints, nor in the ligamentum patellæ.

At the time of the inspection various parts were removed and submitted to Dr. Stevenson for chemical analysis, and the subjoined report is from his pen.

"I have examined the substances sent for mucin with the following result:

I. *Case of Myxœdema.*

a.	Cardiac tendons	1·9 per cent.
b.	Pelvic cellular tissue and fat	Traces.
c.	Cellular tissue and fat from thorax	0·4 per cent.
d.	" from thigh	Traces.
e.	Connective tissue of liver	"

II. *Case of Bright's Disease.*

a.	Connective tissue (from thigh ?)	0·5 per cent.

III. *Case of Accident.*

a. Connective tissue from thigh . . .	Traces.
b. Tendo-Achillis	·77 per cent.
c. Tendon of breast and pericardial fat . .	Traces.

Thus it would appear that the increase of mucin in this case was very equivocal, although the clinical symptoms were markedly those of myxœdema. It is this point which I wish to emphasise because to it attaches most of the interest of the case, and in this it at present, so far as I know, stands alone. Thus far I think it goes not to support Dr. Mahomed's contention that myxœdema is merely chronic œdema, but to show that part of that proposition is true, viz. that chronic œdema will produce the clinical symptoms of myxœdema. I do not know what biologists or chemists may have to say to his hypothesis that mucin is a stage upwards in the scale of organisation from simple serum. It would probably be safer to content oneself with holding that this disease is a chronic œdema which in some cases, perhaps from individual peculiarities, shows the existence of mucin. But I do not bring the case forward, as might at first sight be supposed, to controvert the existence of myxœdema as a disease. My purpose is the very opposite of that, viz. to urge that the clinical picture so ably pourtrayed by Sir William Gull and Dr. Ord is probably produced by various causes. Dr. Ord's facts as to the excess of mucin present, seem to me to be exceedingly valuable, not perhaps so much in themselves, though I by no means underrate them, as because they suggest a mode of degeneration of tissue which has not hitherto been suspected, and because, when the subject is worked out, we shall certainly find other degenerations, not exactly the same, but which are closely allied to it. Of late years our pathology has been an active one, we have been inclined to express all changes in terms of cell growth and cell proliferation. We have come to assume, without any just foundations, it seems to me, that all fibroid changes are the outcome of interstitial inflammation. The exudations and degenerations of old have come to be discarded, but surely unjustly so; and these cases seem to point us back to more discriminating views. I suspect, indeed, that Dr. Mahomed is not so very far wrong when he insists that arterio-capillary fibrosis is an allied disease. He says "the same." I would say allied. But we must part company when he advocates the inclusion of all these changes within the embrace of "chronic Bright's disease." I dissent from any such extended application of the term "Bright's

disease." To use it so is to make it synonymous with senile changes of all kinds, when it not only ceases to have any meaning, but the main utility of such observations as these is absolutely destroyed. Myxœdema is suggestive in that it reopens an almost closed book, of degeneration, and it bids us explore by the better light which chemistry now affords what is probably their great variety. Some may think that myxœdema is a small matter. I believe, on the contrary, that the more one considers it from this point of view, the more does its largeness become apparent; and thus it is that I conceive we are much indebted to Dr. Ord for having planted an observatory in a hitherto too much neglected territory, but from which new surveys may be made, and fresh knowledge gained.

XVII.—*Case of Myxœdema improving under treatment.* By F. A. Mahomed, M.D. *Read March* 10, 1882.

JULIA KIDBY, æt. 30, married; attended as an out-patient under Dr. Mahomed, Jan. 16, 1882. (Pl. I, fig. 1.)

Mother died, æt. 63, rather suddenly from cold; father living and healthy. Six brothers and four sisters. One sister died when 5 months pregnant. Others all living and healthy. She has been married 12 years, and has had 7 children, all living but one, which died of bronchitis. Youngest child 8 months. She has generally had exceedingly good health. Her confinements have been good, but she has lost much blood during labour on each occasion. She thinks her face began to be a little puffy towards the end of her last pregnancy, and it has got steadily larger and more puffy since; it never varied from day to day. Her hands have been swollen but never her feet. Her friends tell her she is a "different woman;" her face was "long," it is now "broad." She has the characteristic waxy and puffy appearance of myxœdema. Her lips are blue, much swelling below the eyelids, but no pitting of the swelling. Her cheeks have the usual bright pink colour. Her hands are hard, swollen, brawny and stiff, so stiff she can scarcely feel what she touches; they are very characteristic; there is no pitting.

Skin white, dry, and harsh.

Memory good, but speech slow and drawling. Eyesight and hearing unchanged, she talks much and to the point, but slowly and deliberately. Complains much of a dull pain in the

top of the head, especially towards evening. This is her chief complaint.

Position of heart's impulse cannot be felt. The sounds are normal, the second rather accentuated. Her pulse is not of unusually high pressure to the finger though persistent. No satisfactory tracing could be obtained until after she had taken nitro-glycerine, which appears to have dilated her vessels. The tracing taken on Feb. 13 shows increased length of systole and decidedly high pressure.

Lungs appear normal. Tongue coated with thin white fur. Appetite much impaired. Bowels naturally costive. No pain after food.

On Jan. 16, Jan. 30, Feb. 6, and Feb. 13, her urine was examined and contained no albumen, sp. gr. 1022, acid reaction, passed in normal quantity and with normal frequency. Catamenia absent since last child, but she had been suckling till a month before she attended.

Jan. 16.—℞ Acid. Hydrobromici ♏xx, Syrupi ʒj, Aq. ℥j, ter die.

Jan. 30.—Pain in head no better; last week she had toothache and could not come. ℞ Solutio: Nitro-Glycerini ♏ij (1 p. c. sol.); Aq. Minth. Pip. ℥j, ter die.

Feb. 6.—Headache better; she has temporary headaches after her medicine but of a different kind. She says that her hands are more supple and she can wash herself better. Rept. mist. ℞ Pulv. Elaterii sal. gr. xv, alt. mane (containing ½ gr. elaterium).

Feb. 13.—Everybody tells her she looks much better. The swelling is evidently diminishing, her hands are softer and much more supple, and she says she can feel much better than when she first came; and also that her gloves, which were formerly so tight that she could with difficulty get her hands into them, are now much too large for her. She talks quicker. Much purged by powders; she took two.

Feb. 20.—Still much better; the puffiness below the eyes is rapidly disappearing. She says that her clothes are now too large for her. Urine contains a trace of albumen, but she is "unwell." This is the first time since last confinement. The skin on her hands is much more loose.

Feb. 27.—Still a trace of albumen.

March 5.—No albumen.

Remarks.—That this woman presents the condition known as myxœdema there can be little doubt; and perhaps as an ordinary case it would hardly have been worthy of record after the numerous examples recently brought under the notice of the Society, but the fact that so remarkable an improvement should have taken place in a patient while under treatment, appeared sufficiently noteworthy. That this improvement has really taken place I have not the slightest doubt. It has been the subject of common remark, not only by myself but by my clinical clerks, and the students who happen to have seen her when she first came, and recently in addition to her own repeated assertions, which are moreover borne out by her relatives. I directed that a photograph should be taken of her at her first visit, and I thought this had been done, but unfortunately, owing to some misunderstanding, this invaluable record was not obtained. On Feb. 20 I photographed her myself, and the result I now exhibit. I believe that her improvement is due to the treatment by nitro-glycerine. This was taken in doses of $\frac{1}{50}$ of a drop three times a day. I gave it with the intention of relaxing her arteries and so to some extent of reducing arterial pressure, and at the same time increasing the rapidity of her capillary circulation. The first fortnight she was under treatment by hydrobromic acid. During this period she exhibited no improvement whatever, but that which has taken place in the following three weeks, during which she has taken the nitro-glycerine, has been marvellous; and I bring her here to-night that the diagnosis may be confirmed, and with the hope of being able to show her again at a later period, with still further improvement.

Note.—July 10.—Her improvement was not maintained. She rapidly relapsed into the same condition as before. The only permanent improvement has been the relief of headache for which she first sought treatment. On June 5 her urine was found to contain more albumen than formerly. To-day (July 10) her urine is *very highly albuminous*, so that there can be no doubt about the existence of Bright's disease in this case.

XVIII.—*A Case of Unilateral Xanthopsis; or, Perverted Colour Vision following Sunstroke.* By W. Henry Kesteven. *Read January* 27, 1882

H. L., æt. 23, married; has been once pregnant, but the child was killed *in utero.* She has enjoyed general good health.

On July 15, 1881, a day known and remembered as "the hot Friday," this patient, whom I had the honour of showing to the Society at its last meeting, had occasion to cross a small yard at the back of the house where she resides. Whilst doing this she was seized suddenly with an acute pain in the head, she ran indoors, and then she found that she saw everything green and red.

The pain continuing very severe, the next day I was sent for. I found her in such pain as to preclude any ophthalmoscopic observation, but she told me that the bright green and red tinting which she had first experienced was better. The pain continuing very bad I injected some morphia, and recommended the use of ice on the head. Not being content with this the patient had her head shaved, in order that the hair might not prevent the action of the cold. Next day I found her better, and was able to examine her eyes.

I found with the ophthalmoscope that the left disc was healthy, but the right disc presented the appearance which is described below.

I roughly tested her field of vision, and found that it was diminished in both eyes.

On testing her colour vision with Holmgren's wools, I found that she could detect red and green when strong shades were shown her, but blue, yellow, and the greys she could not tell as such, but called them all green.

On July 25 she was seen by Dr. Buzzard, and we examined her together. The following is the description of what was then seen, as dictated by Dr. Buzzard:

"Right eye—Direct method.—A patch of flocculent-looking effusion (?) conceals the upper one third of the disc. It is lustrous, with a greenish tint. Vessels partially embedded in it, and concealed by it, one vein with a marked kink. This patch of effusion (?) ceases abruptly downwards on the disc, and the rest of the disc wears a normal aspect, except at the very lowest part, where there is a small spot of straggling effusion (?), which

partially conceals a small vessel. To the observer's left of the disc there are several tortuous vessels."

Dr. Buzzard placed a note of interrogation after the word effusion because although the prominence and general appearance was that of an inflammatory effusion, still it might be that this white mass was only retained nerve sheath or white substance of Schwann.

Mr. John Couper, to whom the case was shown some two months later, expressed the opinion that what he saw was a patch of double contouring of nerve fibres and that alone, but by that time, according both to Dr. Buzzard's and my own observation, there was considerable diminution in the prominence and in the entire size of this white patch, so that in all probability there had been some inflammatory effusion when it was first seen, but that this had become gradually absorbed. The probability of this explanation is increased when we bear in mind that the vessels were markedly more tortuous in this than in the other eye. As regards this point Mr. Couper concurred. When the patient's colour vision was tested by Dr. Buzzard he obtained the same results as I did. But Dr. Buzzard tried what it had not occurred to me to do, that is, he tested each eye separately, and found then that the colour vision of the left eye was quite normal, but that with the right eye the patient saw all colours as yellow, darker or lighter according to the intensity of their tone.

This discovery explained the fact of her calling greys yellow and blues green, when seen by both eyes, the normal left eye correcting to a certain extent the yellow vision of the right eye.

Her powers of vision for objects at a distance was equal and normal with both eyes. There was no loss of muscular power in either eye.

Within the last month the patient's colour vision has been rapidly improving, and she has now almost lost the yellow coloration of surrounding objects. The white patch over the right disc still remains, though considerably reduced in size and prominence. As there seems no doubt that this is a congenital condition, it may be now considered that the patient has recovered as far as she is ever likely to do.

This condition of the colour vision, which I have ventured to name xanthopsis, is, so far as I can learn, very rare. In accordance with your rule, which requires some explanatory remarks to be appended to each paper, I would suggest the following:

If the eyes are turned towards the sun for several seconds,

and then removed and fixed upon some near object, there will be seen a spot of greenish blue corresponding in size to the disc of the sun. If this is watched it will be seen to become yellow, this last colour being much more persistent than the greenish blue.

Now, in the case before us the patient immediately after the attack saw all things green and red. May we not explain this by attributing it to the violent impression made on her retina by the powerful sun's rays, causing her really to see all things greenish blue. If she were to shut her eyes she might still retain the images of the objects she had seen, but now they would be red, the complementary colour of green; and with the intense pain that she was suffering it is quite possible that she might not be sure whether her eyes were open or shut. As we have seen above, the greenish-blue spot gradually gives place to a yellow coloration, and I would suggest that this is what occurred in the present case, the intensity and greater permanence being due to the violence of the original impression. I am quite prepared to be told that these statements as to her colour vision, depending as they do on the patient's *ipse dixit,* cannot be relied upon, that they are most probably hysterical. Nor am I in a position to deny this; but if it is so, and she has been misleading us, it is a curious fact that, ignorant and rather heavily stupid as she is, she should have pitched upon the very symptoms which, in the nature of things, are those which ought to have arisen.

Sunstroke being somewhat rare in or near London, I shall be glad to hear from any gentleman whose tropical experience may enable him to say whether perversion of the colour vision is common in such cases.

XIX.—*A Case of Nephro-lithotomy.* By Marcus Beck. *Read January* 27, 1882.

THIS case closely resembles in many respects that communicated to the Society by Mr. Henry Morris last year; in fact, it was his success that encouraged me to undertake a similar operation upon my patient. The chief difference between this case and Mr. Morris's is that in his the stone could be clearly felt through the substance of the kidney, while in mine its presence was only to be ascertained by puncturing the kidney with a fine needle.

The history of the case is as follows:—The patient was a young man, æt. 19. In the year 1869, when he was seven years old, he suffered from severe pain in the left side, for which he was taken to a hospital, where he was told that he was suffering from inflammation of the bladder and was ordered to apply poultices. The pain was severe and came on in paroxysms. It was referred rather to the left iliac than the lumbar region, and it was aggravated by movement. He passed no blood with his urine at this time. After attending the hospital for a short time the pain diminished, and finally left him, but from that time he was liable to its recurrence. He was often free from it for three or four months at a time, and the frequency of the attacks gradually diminished as he grew older. He says he was unable to play like other boys for fear of the pain. Leap-frog was painful to him, especially if the other boys "pitched too hard on his back." At the age of eleven he began to work as a paper-hanger's boy. He frequently felt uneasy in his side, especially in the evenings, but the pain was not intense enough to stop his working, except during the more severe attacks. These seldom lasted more than two days, and were relieved by hot applications. The pain was always in the same place, and did not shoot into the thigh or testicle.

In August, 1880, while at work, he suddenly felt an uneasy sensation in the left testicle accompanied by an urgent desire to pass water, and on doing so he found that his urine was darkly stained with blood. He passed blood twice again on the same day, but from that time he only saw bloody urine on one occasion, about one month before I first saw him in June, 1881.

From the time of the first attack of hæmaturia all his symptoms became greatly increased. The pain became much more severe, and was now distinctly situated in the left loin, shooting occasionally into the testicle and buttock but never down the thigh. It was almost constant, but was varied by intense paroxysms. It was increased by movement, so that he was unable to walk for more than ten minutes at a time. Even sitting up caused uneasiness. During the year before he was admitted into the hospital he was able to do about five weeks' work, but never more than half a day at a time, and, to use his own expression, "always in great misery." From the time of the sudden increase of pain he began to be troubled by frequency of micturition. This varied with the pain, but for some months before admission he had scarcely ever been able to

hold his water for more than two hours at a time, either by night or day. Passing water was not accompanied by pain, and he felt more comfortable when the bladder was empty. With the exception of the two occasions already mentioned, he never recognised blood in his urine. He says it was sometimes brown, and sometimes there was a thick sediment, but the history on this point is not sufficiently clear for any opinion to be formed as to the nature of the deposit.

In August, 1880, he saw a medical man who thought he had stone in the kidney. In November, 1880, he applied at a hospital, where he was sounded for stone. It is recorded on his card that on November 26 the urine was alkaline, sp. gr. 1020, with a phosphatic deposit and no blood.

On December 21 there is said to have been much albumen. On January 1, 1881, he was transferred to the physician, who found no albumen or blood at any time.

On February 3 he was admitted into another hospital, where the diagnosis of stone in the kidney was made. He was under the care of the physicians for five weeks, and was treated chiefly by rest in bed, but without any benefit. He was advised not to submit to any operation. He then tried a herbalist for some time, with whom he spent three or four shillings weekly in wild carrot and parsley pierts, of which he made an infusion and drank about a pint daily. Both these herbs are recommended as "stone breakers" in *Gerard's Herbal*, of which the first edition appeared in 1597.

He then applied amongst my out-patients at University College Hospital. He stated at once that he wished some operation to be done, as he was suffering so much that he was unable to earn his living, and would run any risk to be rid of his trouble, saying that in his present state "he was of no use and might as well be dead."

He was admitted on July 22, 1881. There was nothing of importance in his family history.

State on admission.—The patient was a sallow, unhealthy-looking youth, of somewhat stunted growth, apparently having suffered from rickets in infancy. When standing he carried the left shoulder considerably lower than the right. When he was lying on his face a distinct fulness could be noticed in the left lumbar region. There was so much tenderness that accurate examination without chloroform was impossible. It was the opinion of some of those who examined him without an anæsthetic that the kidney could be felt lying lower down than natural, but this proved to be an error,

caused by the contraction, and possibly, as it afterwards appeared, by the hypertrophy of the muscles between the last rib and the ilium. When the muscles were fully relaxed by chloroform nothing resembling the kidney could be felt. The urine was alkaline when passed, and slightly turbid. There was no ammoniacal odour. The turbidity almost completely disappeared without effervescence on the addition of a few drops of acetic acid. The specific gravity of the urine collected for twenty-four hours was 1020. There was no albumen deposited on boiling, and the microscope showed nothing but a trace of pus. The quantity of urine passed in twenty-four hours was 40 oz. The temperature was normal, both in the morning and evening.

Taking the history and present state together there could be little doubt as to the presence of a stone in the left kidney. The extreme pain caused by movement, the great frequency of micturition, and the occasional free hæmaturia suggested that the stone was loose in the pelvis, and not confined in a calyx. The small quantity of pus present showed the pyelitis was commencing.

Before proceeding to nephro-lithotomy an attempt was made to relieve the patient by perfect rest in bed, but three weeks of this treatment having produced no result the operation was undertaken.

On August 16, 1881, the patient was put under the influence of ether, but this caused such violent respiratory movements that chloroform was substituted before the operation was commenced. When the abdominal muscles were fully relaxed a careful examination was made, but the kidney could not be felt. It was evident, therefore, that any attempt to examine it by acupuncture without first exposing it would not be likely to be successful. An incision was therefore made, nearly parallel to the last rib and a little above the middle of the space between that bone and the crest of the ilium. It was thus a little more oblique and nearer the last rib than the ordinary colotomy wound. The wound was about 5 inches in length and extended backwards to the edge of the erector spinæ. The muscles were found much thicker than would have been expected in so feeble a subject. The free edge of the external oblique was nearly one inch in thickness. The fat around the kidney was reached without any trouble, except a little bleeding from the last intercostal artery. The free edge of the quadratus lumborum was exposed, but there was plenty of

room in the wound without notching it. The fat was now torn through with the fore fingers, and the lower half or more of the outer border of the kidney was exposed without difficulty. The kidney was brought more readily into view, and at the same time steadied by pressure on the abdominal wall in front. It was apparently perfectly healthy, and the most careful manipulation failed to detect any stone, although one finger was passed in front and one behind and the organ manipulated between them. The kidney was therefore explored by acupuncture. The instrument used was a common darning needle held in a pair of torsion forceps. On thrusting the needle into the kidney its entrance into the pelvis could be clearly recognised by the loss of resistance. As soon as it was felt to be in the pelvis it was moved very carefully, taking care not to scratch the other side. The sensation of its grating against a stone was at once clearly felt. The stone seemed to be above the needle, and to make sure of its situation a second puncture was made half an inch higher up, when the needle struck directly upon the stone. Taking the line of this last puncture as the guide, a broad scalpel was thrust into the outer border of the kidney, with its edge directed upwards, until it was felt to strike upon the stone. On withdrawing it a most alarming jet of blood sprang up into the wound, filling it and concealing the kidney. A sponge was immediately pressed into the wound, and held firmly against the kidney, while the organ was supported by firm pressure in front through the abdominal walls. After about half a minute, on removing the sponge, the hæmorrhage was found to have completely ceased. In order to avoid further hæmorrhage a pair of polypus forceps were introduced into the pelvis by the incision already made, and the wound enlarged by opening the blades. This proceeding caused some tolerably free bleeding, but nothing approaching in amount to that caused by the incision. Several efforts were then made to seize the stone, but without success. The finger was therefore introduced into the pelvis, and the stone was felt lying towards the upper part of the cavity. It was readily seized by a pair of curved polypus forceps guided by the finger, and removed without further difficulty. The bleeding at this stage was very slight, and in less than a minute ceased entirely. The pelvis was then carefully explored with a sound, but no other stone was felt. The wound having been cleared of clots was closed by silk suture, a large india-rubber drainage tube being introduced with its deep end

lying in the torn fat round the kidney. The operation was performed under the carbolic spray, and the wound dressed with carbolic gauze.

The stone weighed 29 grains. It was heart-shaped; rounded, and divided into two lobes at its base, and pointed at its apex (Plate V, fig. 2). It measured from base to apex $\frac{3}{4}$ inch; greatest transverse diameter $\frac{5}{8}$ inch; greatest thickness $\frac{3}{8}$ inch. Its surface was studded with minute crystals in some parts. Its base was blackened, apparently from staining by blood. The stone was composed of layers of uric acid alternating with layers of phosphates. Some of the layers of uric acid were darkly stained by blood.

The patient suffered somewhat from shock after the operation. The pulse was 120 and weak; the surface of the body cold and clammy, and he vomited several times. At seven in the evening the temperature was 97·5°, but rose by midnight to 99°. At 10 P.M. it was necessary to dress the wound on account of the abundant red serous discharge. There was no odour of urine about the dirty dressing. The straining in vomiting had apparently caused slight oozing, and a few clots of blood lay about the wound and protruded from the drainage tube.

Aug. 17.—He had vomited frequently during the night. At 10 P.M. he was feeling comfortable and free from pain. By midday the vomiting had completely ceased. Up to this time he had passed no urine, although he felt some desire to do so. A catheter was passed and 12 oz. of urine darkly stained with blood, but free from clots was drawn off. In the evening he passed naturally 16 oz. of urine darkly stained with blood. In the afternoon the wound was dressed. Some blood-clot projected on each side of the drainage tube. The amount of discharge was small and free from urine. Temperature, morning 99·4°, evening 100·8°, pulse 105, of good force.

Aug. 18.—Slight nausea, but no vomiting. Forty-two oz. of urine, smoky in tint, were passed during the 24 hours. His bowels were relieved. The straining at stool caused some pain, otherwise he was perfectly comfortable. Temperature, morning 99·4°, evening 100·6°, pulse full and strong, 105.

Aug. 19 to 22.—During these four days the patient made rapid progress. He was comfortable and free from pain. He was able to take meat for dinner on the 22nd. The dressing was changed once. There was very little discharge and the blood-clot lay unaltered about the wound. The discharge was free from urine. He held his water for four or five hours with-

DESCRIPTION OF PLATE V.

The drawings represent the size and appearance of calculi removed by nephro-lithotomy.

FIG. 1 represents the outer surface and a section of the calculus removed by Mr. Butlin. See p. 115.

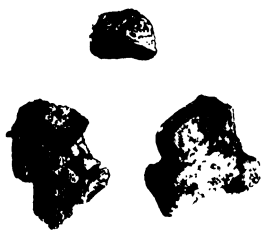
FIG. 2 represents the outer surface and a section of the calculus removed by Mr. Beck. See p. 108.

FIG. 3 represents the fragments of a calculus removed by Mr. Haward. See p. 122.

1.

2.

3.



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out difficulty. The urine varied from 40 to 42 oz. per diem, and was free from blood, except on one occasion after straining at stool. The pulse fell to 96, and was full and strong. The temperatures were as follow:

Aug. 19.—M. 100°, E. 100·2°.
Aug. 20.—M. 98·8°, E. 99·8°.
Aug. 21.—M. 100·2°, E. 101·4°.
Aug. 22.—M. 100·6°, E. 101·0°.

Aug. 23.—This afternoon, without any apparent cause, the urine began to flow freely from the wound, soaking the dressing and the bed. The amount of urine passed by the urethra fell from 42 oz. to 17. In other respects the patient was very well. His appetite was good and he was free from pain. The bowels had been confined for two days before, but were now relieved copiously. The temperature was, morning 100·8°, evening 101°.

Aug. 24 and 25.—The urine continued to flow from the wound. From 11 A.M. on the 24th to the same time on the 25th he passed 32 oz. by the urethra. The dressing had to be changed twice a day, but by great care on the part of the House Surgeon, Mr. Collings, the asepticity of the discharges was maintained. The blood-clot, which had remained unchanged up to the time the urine began to pass by the wound, broke down and came away. The stitches were removed to ensure free drainage, and the wound consequently gaped slightly in its whole length. The temperatures were:

Aug. 24.—M. 99·2°, E. 100·2°.
Aug. 25.—M. 99·4°, E. 100·4°.

Aug. 26.—The flow of urine from the wound ceased as suddenly as it had commenced. The patient was very well in every way. The temperature fell to 99·4° and did not rise again above 100° throughout the case. He passed 30 oz. of urine by the urethra. It contained a little albumen and some pus.

Aug. 27.—The wound was granulating healthily. The drainage tube was finally removed. The quantity of urine rose to 40 oz. by the urethra and to 52 on the following day. From this time onwards his recovery was uninterrupted. He sat up in bed on the 21st day after the operation; he left his bed with the wound reduced to a small superficial sore on the 28th day, and he left the hospital for a convalescent home on the 35th day with the wound soundly healed. The urine throughout the case was acid. After the flow through the loin ceased the urine contained a considerable amount of pus. This diminished greatly before he left the hospital. The irritability

of the bladder, which was one of his greatest troubles before the operation, ceased immediately after the removal of the stone, and has not returned. At the present time (Dec. 20, 1881) he is greatly improved in health and perfectly free from pain. He has been able to resume his work as a paper-hanger. The urine still contains a small quantity of pus and some excess of mucus, but both are steadily diminishing. Buchu tea seems to have done something towards improving the state of the urine.

Remarks.—The result of this case justifies the hope expressed by Mr. Morris that "the arguments in favour of nephro-lithotomy would be increased by future experience." The recovery was as rapid and the constitutional disturbance as slight as in an ordinary case of perineal lithotomy, and the difficulties of the operation were certainly no greater, if as great. It seems probable that in well-selected cases such a result might almost with certainty be obtained. It is important, therefore, to determine, if possible, what are the pathological and clinical conditions which should guide us in the selection of cases for nephro-lithotomy. In this case the circumstances which determined me to operate were the following:—There was no hope that the stone could be passed by the ureter as it had been present in the kidney for twelve years. Treatment by rest had been fairly tried without benefit, and there was no prospect therefore of relief from the calculus becoming encapsuled. The great frequency of micturition and the persistent presence of pus in the urine showed that the stone was causing inflammation of the pelvis which would probably have ended in destructive changes in the kidney. The patient was in constant pain and totally incapacitated from earning his living. The symptoms were clearly limited to one side. The fact that the patient had never passed gravel at any time made it probable that the stone was single, and that if it were removed the cure would be permanent. The patient, with the exception of the symptoms caused by the stone, was in good health. He was young and not too fat. In a very fat subject the operation would be extremely difficult if not impossible. Lastly, the patient urgently begged that something should be done as his sufferings were intolerable. Thus the case presented every condition which could justify the operation.

In the history of the case one point seems worthy of further notice; the sudden change in the symptoms that took place about a year before he was operated on. For the first eleven

years of the time during which he suffered from symptoms of renal calculus, the attacks of pain were rare and were always brought on by excessive walking. Riding in a train or omnibus caused no pain, and there was no frequency of micturition. Then came a sudden pain in the testicle followed by profuse hæmaturia, and from that time forward jolting of the body and walking equally caused pain, and frequency of micturition became a prominent symptom. It seems probable that this sudden change was due to the stone becoming dislodged from a calyx and coming to lie loosely in the cavity of the pelvis. From the form of the stone it was evidently moulded in a calyx, and at the operation it was found in the pelvis. In certain cases which have come under my observation I have noticed that in some more pain is caused by the movements of the muscles near the kidney (the psoas and quadratus lumborum), such as necessarily occurs in walking than by passive jolting of the body, and in others both conditions give rise equally to pain. Frequency of micturition is also a very variable symptom and the variations may possibly depend on the position of the stone. When we consider that all the graver consequences of renal calculus—pyelitis, hydronephrosis, pyonephrosis, &c. —arise more commonly when the stone is in the pelvis; and that the chances of cure by the stone becoming encysted are necessarily much greater, when it is confined in a calyx, the importance of recognising its situation is evident, as in the former condition an operation would be more urgently required. I would therefore suggest as a means of diagnosis the following rule:—Pain induced merely by walking and not aggravated by jolting as in a cab; and absence of irritability of the bladder indicate that the stone is enclosed in a calyx. Pain induced by jolting and walking with frequency of micturition indicate that the stone is free in the pelvis. I do not pretend to have evidence to prove such a conclusion, but I think it would be a subject worthy of investigation by those who have the opportunity.

In Mr. Morris's case, in which the stone projected from the posterior surface of the kidney and was most probably filling a calyx, walking caused great pain, but I find no mention of frequency of micturition, nor did the urine contain pus. The effect of riding in a train or omnibus is not mentioned.

With regard to the diagnosis of this case there is only one point calling for remark. The fulness in the loin was so clearly visible even when under chloroform as to lead to the

idea that the kidney was enlarged. Some who examined the patient without an anæsthetic thought they felt the kidney. These appearances proved, however, to be due to great thickness of the abdominal muscles, especially the free edge of the external oblique. They were apparently hypertrophied as a consequence of persistent contraction to protect the tender kidney beneath.

The chief point of interest in the operation was the adoption of the plan of exploring the kidney after exposing it by puncturing it with a fine needle, without which, the stone could not have been detected, as no amount of manipulation gave any indication of its presence. This plan was recommended by Mr. Morris in the discussion on his paper last year, and by Mr. Barker in his paper read before the International Medical Congress, 1881. It answered admirably. I do not think any instrument could be found better for the purpose than that which was employed. It consisted merely of a common darning needle held in a pair of torsion forceps. The flattened end of the darning needle gave such a firm hold to the forceps that the sensation of the needle grating over the stone was communicated as if through a solid instrument. In extracting the stone the opening into the pelvis was made by a simple puncture with a scalpel. This was enlarged by means of a pair of dressing forceps. I am inclined to think the cutting should be as limited as possible. The kidney substance would probably tear with much less injury to its structure than would result from an incision, and the danger of hæmorrhage is of course greatly diminished. The hæmorrhage which followed the puncture from the scalpel was most alarming, but it ceased with wonderful rapidity under a little gentle pressure. The hæmorrhage from the subsequent enlargement of the wound was comparatively slight.

The rapid recovery of the patient without the formation of a fistula, and in fact with no escape of urine from the wound except for the brief period of four days, I believe to have been due chiefly to the great thickness of kidney substance cut through. The opening was at first closed partly by the swelling of the injured gland tissue and partly by the adhesion of the clot. The ureter being pervious and at no time obstructed by clots, no urine escaped from the wound for the first week. At the end of that time, I suppose in consequence of the subsidence of the swelling of the gland and the breaking down of the clot, the urine flowed from the wound, but in four days it ceased and did not return. Guided by this

experience in another case I should not attempt to get to the pelvis even if it were certain that the stone lay free in its cavity, but should remove it by an incision through the cortex, this evidently giving the best chance of avoiding a fistula, and not being counter-indicated by any danger of hæmorrhage.

The operation was performed under strict antiseptic precautions, and to this I am inclined to attribute to a great extent the rapid healing of the wound. No doubt with perfect drainage cases may do very well without rigid antiseptic dressing, but should the drainage break down there is a danger of decomposition spreading to the pelvis and giving rise to septic pyelitis and disseminated suppuration of the kidney, a condition very likely to prove fatal even when only one gland is affected.

In conclusion, I have to thank my colleagues, Mr. Barker and Mr. Godlee, for their assistance and for many valuable suggestions during the operation.

XX.—*A Case of Renal Lithotomy.* By Henry T. Butlin. *Read January* 27, 1882.

In August of last year (1881) a young man, æt. 20, presented himself at St. Bartholomew's Hospital, seeking relief from severe neuralgia of the right testis. I was at that time on duty for Mr. Willett, and examined the testis, which appeared to be normal save for a slight thickening of the cord close to the epididymis. The patient stated that from the age of about eight or ten years he had been subject to frequent attacks of pain in the testicle, that these attacks generally occurred once every day, and lasted sometimes for several hours. He did not remember ever to have passed more than a few days without severe pain.

On September 6 he was admitted into the hospital, and during the following days had several attacks of pain, each lasting from half an hour to an hour or more. During these attacks he groaned and writhed and rolled about in bed, but occasionally talked to those about him, and even joked and laughed. The testicle was generally drawn up into the inguinal canal, and was so tender he could not bear it to be touched. His appearance did not betoken severe suffering, except during a paroxysm, for he was fairly nourished, and rather robust than

sickly. I imagined he was suffering from neuralgia of the testis, and finding no other cause for it coupled it in my own mind with the thickened and tender swelling close to the epididymis.

About the middle of September Mr. Willett returned to duty, and, fortunately for the patient, entered much more thoroughly into his case than I had done. He found that, although the pain was referred chiefly to the testis, it was almost always associated with, and sometimes preceded by, pain in the lumbar region, and that there was tenderness deep down in the abdomen on the right side but no swelling, either during or between the paroxysms. The urine was from this time carefully and repeatedly examined by Mr. D'Arcy Power, the dresser, who discovered on almost every occasion crystals of calcium oxalate, and on many occasions a very faint trace of albumen. There was generally, too, a slight excess of phosphates. For the rest, the urine was invariably clear and never contained pus or blood, although blood-corpuscles were diligently sought for; it was generally pale and copious (from 45 to 65 oz.), with a specific gravity of 1020. There was not at any time increased frequency of micturition.

In consequence of these discoveries the history of the patient was again inquired into, but the only additional facts which were elicited were that the paroxysms of pain were a little less violent if he kept quiet,* and that he had never passed any blood in the water. To the latter statement he added that he believed he had once passed a small quantity twelve years previously, but this his father, who was a surgeon and had watched his case throughout, could not confirm. From the condition of the urine, from the pain and tenderness in the lumbar region, Mr. Willett came to the conclusion that the neuralgia was due to some affection of the kidney rather than the testicle. On my return from my holiday he was good enough to hand over the treatment of the case to me. It is not necessary to enumerate the various medical measures which were adopted for the relief of the disease. Rest and sedatives diminished the severity of the pain, but nothing which was done appeared to influence the frequency of the attacks. As the prospects of the patient were seriously impaired, and his life was rendered intolerable by the frequency and severity of these attacks, and as it appeared probable that his health

* He suffered greatest pain when driving; least when riding. If the pain came on when he was driving, he was obliged to get down and run for a considerable distance to obtain relief.

would eventually suffer, it was determined to cut down upon the kidney and examine it.

On October 25 the kidney was exposed through a vertical incision along the border of the erector spinæ, extending from the eleventh rib to just below the iliac crest. It lay deep down in the wound, but its posterior surface and its borders could easily be reached with the finger. At first it appeared to be normal in size, contour, and consistence; but towards the inner border a softer spot was felt, in which Mr. Willett, with the advantage of his longer finger, distinguished a hard body. The kidney was pressed upwards from the front, the tissues lying over the hard body were scraped through with the finger-nail,* and the hard body itself, which proved to be a calculus, was removed without difficulty by means of a long and slender pair of forceps. The finger passed into the cavity from which the stone had been removed, felt papillæ and calyces, and thus proved beyond a doubt that the cavity was the pelvis of the kidney. A drainage tube was inserted, but owing to the movements of respiration it was not easy to maintain it in a suitable position. There was very little hæmorrhage, and the only difficulties in the operation were due to the depth at which the kidney lay. Lister's antiseptic spray and dressings were employed. The calculus (Pl. V, fig. 1) was composed of calcium oxalate, was about the size of a large filbert, weighed 60 grains, and presented a very rough and prickly exterior.

In the course of the evening the patient suffered from a violent attack of pain of the same character as the former pains, and the testis was drawn up towards the groin. This was the last attack of neuralgia of the testis.

During the two days which followed the operation the temperature continued steadily to rise, and as the drainage from the wound was evidently insufficient I replaced the first tube by portions of two flexible catheters (Thompson's), one of which was passed apparently into the kidney pelvis, the other into the loose tissues behind the kidney, which had been much disturbed during exploration with the finger. A free discharge at once took place of pus and urine, and the temperature speedily declined. The whole quantity of urine from the wounded kidney was never, however, discharged through the wound, for the urine, which was passed through the

* So far as I am aware the tissues thus scraped through did not include any of the secreting structure of the kidney. Apparently they comprised little else than the wall of the pelvis of the kidney.

urethra, was deeply blood-stained, and contained about a quarter of albumen. The quantity was from a pint and a half to two pints, or more.

On October 29 the antiseptic dressing was abandoned as the wound was soaked continually in urine, and appeared a little inflamed in consequence. The patient was raised on pillows so that a deep hollow was formed beneath the loin, and the discharges were allowed to sink directly into carbolic tow, the outer portions of the wound alone being covered with carbolic oil. From this time it healed without interruption. By October 31 blood had ceased to be present in the urine from the bladder, and the albumen had diminished to about one twelfth. But about this time pus first appeared, and during the next few days increased in quantity, so that on November 3 it formed a deposit of considerable bulk. With the increase in the pus there was naturally a proportionate increase in the quantity of albumen.

About November 7 and 8 the quantity of urine through the wound was very much smaller, and apparently after November 9 no urine was mingled with the pus discharging from the wound. Until November 28 the amount of pus in the urine gradually became less, but on that day there was a sudden increase, followed immediately by a rise of temperature. This was combated by a diminution in the diet administered to the patient; fish was substituted for meat, and an increased quantity of milk was ordered. The sediment of pus quickly diminished, but did not disappear.

On December 3 the drainage tubes, which had been shortened from time to time as occasion seemed to require, were finally removed.

On December 10 the patient was allowed to be out of bed, and on the 23rd was sent home. He was then in good health and free from pain, in greater comfort, indeed, than he had been at any time in all the years he could remember. There was still a little sediment of pus in the urine. The wound was reduced to a small superficial ulcer the size of a sixpence.

The features of this case which appear to be most interesting are:—First, the misleading nature of the history and symptoms; second, the appearance and persistence of pus in the urine after the operation. To the patient the disease was entirely an affection of the testicle, and all his thoughts were concentrated on the condition of this organ, which he was urgent to have removed. Even when careful examination elicited that the kidney was in fault, the history and the sym-

ptoms were by no means characteristic of stone. The complete absence of pus and, still more, of blood is very difficult to understand. So little claim have I to the credit of the diagnosis, which was the only brilliant part of the achievement, that I confess, although I had no doubt of the desirability of exploring the kidney, I had a very faint expectation, even at the operation, of discovering a stone. This case will, I imagine, prove a more important contribution to the diagnosis than to the treatment of renal calculus.

The pus which appeared in the urine after the operation was for a while thought to be a part of the discharge from the deepest portions of the wound, which, finding its way into the ureter, was passed with the urine from the bladder. But this illusion was dispelled when, with the healing of the wound, the pus did not cease to flow. I am disposed to think that it was the product of an inflammation of the lining membrane of the pelvis of the kidney which had been unduly excited at the time of the operation. It has been suggested that the bladder was inflamed by the passage through it of blood and various matters from the wound, but there were no other symptoms of cystitis by which this suggestion was supported.

Postscript—From letters received during the past month I am glad to be able to say that there has not been any pus in the urine since the patient's return home, and that he has been gaining strength daily, so that his recovery may be regarded as complete.—*January* 27, 1882.

XXI.—*Two Cases of Nephrotomy for the removal of Renal Calculus.* By Thomas Whipham, M.B., and J. Warrington Haward. *Read January* 27, 1882.

ALICE F., æt. 23, married, was admitted into St. George's Hospital, under Dr. Barclay, on September 10, 1880.

There was no family history of disease.

She had one child, at this date four years of age; twelve months ago she had a miscarriage.

Seven years previously she passed a calculus by the urethra of about the size of a date-stone; it was rough and caused much pain; the first attack of pain occurred four or five weeks before the passage of the calculus. The pain was very acute in the left loin, it subsequently recurred in paroxysms; in the intervals she felt a constant pain passing from the left

loin round the flank to the front of the abdomen. After the passage of the calculus she remained in fairly good health (she was never very robust), but although she suffered no paroxysms of pain, she experienced constant uneasiness in the left side.

Since the birth of her child (four years ago) she had never been strong.

For nine weeks previously to her admission she had been again subject to severe pain in the left loin round to the left flank, and above the groin; the pain was constant, but paroxysmal exacerbations occurred, during which she felt sick, but never actually vomited. She stated that the pain resembled that of the previous attack, but was somewhat less severe.

During the past nine weeks she had lost much flesh, more so during the last four, and during the nine weeks she had had profuse night sweats.

She had neither cough nor palpitation; her appetite was bad; the bowels and catamenia were regular, but the latter were attended by pain and bearing down sensation.

Moreover, during this period of nine weeks the urine was "very thick," and contained a brown sediment "as soon as it was passed." Micturition was occasionally painful, but both pain and turbidity varied from time to time.

Previously to the commencement of the present attack the urine had sometimes contained a white, thick sediment, and had a very disagreeable odour.

On admission the patient was much emaciated and pale. The skin was cool and moist, her complexion clear.

She complained of pain shooting from the left loin round the left flank to the groin, great weakness and loss of appetite.

The tongue was furred but moist, the bowels regular.

The pulse was 92 and of fair strength.

The respirations were 24 in the minute, the sounds were feeble, but equal on the two sides.

The heart sounds were natural.

The liver dulness extended from the fifth interspace nearly as far as the thoracic margin.

The abdomen was flattened, but otherwise was natural on inspection.

No dulness was detected. Palpation could be practised freely over the right side and middle of the belly; the abdominal walls being relaxed in these situations.

To the left of the median line the abdominal muscles were in a state of contraction, and strongly resisted pressure; in

consequence no tumour could be detected. There was much tenderness over the left hypochondric and lumbar regions, and slightly in the right loin; the tenderness was most acute in the lumbar region and flank.

Gastric and intestinal resonance was elicited on slight percussion.

The urine had a specific gravity of 1020, was alkaline and contained much pus, but neither blood-corpuscles nor casts could be seen.

The treatment consisted of a mixture of nitric acid and cinchona bark, the diet was milk and mutton broth.

Sept. 13.—She had slight night sweats, the pain varied in intensity, but the paroxysms were absent; the urine contained blood in addition to pus.

Sept. 14.—The pain was more severe during the night, and opium fomentations were applied to the seat of pain on the left side of the belly.

The urine to-day was decidedly acid, of a muddy brown colour, and containing much pus.

By Sept. 18 the patient had improved, and suffered but little pain. She was constipated, and a purge of colocynth with hyoscyamus was ordered. The urine had become lighter in colour, but still contained pus. Two days later she was well enough to enjoy a mutton chop.

On the 24th half an ounce of cod-liver oil was ordered to be taken twice daily. On the evening of this day catamenia appeared; she had suffered much pain on the previous evening, and the left side of the abdomen was swollen.

On the 26th she complained of great pain in the region of the left kidney, in the groin and left side of the belly generally. She sweated much, and had headache. The pulse at this time was 100; temp. 99·3° Fahr. The bowels were constipated.

On the 30th the pain had in some degree changed its character, and was described as "cutting," first in the centre of the abdomen and then passing down to the left groin.

Her general health, however, had improved, and she was free from headache.

The urine was still acid, and contained much pus mixed with urates.

Oct. 4.—The patient in the interval had suffered much pain of a lancinating character; the abdomen was very tender, and during the past few days there had been a slight yellow vaginal discharge.

The urine was unaltered.

On the 7th she was free from pain, but was tender when pressure was made over the left kidney, but no tumour could be made out.

The pain, however, recurred on the 9th, and the urine again contained blood.

From this date the patient's condition was not materially altered.

On Oct. 22 the urine had a specific gravity of 1011, and contained much pus. Her general health was, however, somewhat improved, and she was discharged on the following day.

On March 21, 1881, the patient was again admitted into St. George's, under Dr. Whipham's care. She then stated that the pain in the left flank had persisted ever since she had left hospital, but neither gravel nor stone had passed.

She suffered much from constipation; no action of the bowels occurring for as long as fourteen days. She had taken opium to allay her pain.

During the week previous to her admission the pain had been more intense. On March 20 she had vomited. The bowels had been opened by castor oil on March 16 and 21.

The urine was reported to have been always turbid, with a yellowish white deposit as a rule; at times, however, this deposit was of a reddish-brown colour; a few little clots of blood had been also noticed.

The patient at this time complained that after movement, and sometimes while she was at rest, a sharp pain ran down from the left lumbar region and left hypochondrium to the pubes, thence along the inner surface of the thigh to the inner side of the knee. The pain was also chronic and diffuse in the left flank.

Abdominal palpation excited pain and much muscular resistance on the left side, but none on the right. The pain was most acute if the hand were made to grasp the renal region.

On percussion there was a band of partial resonance below the heart's dulness, and below this the abdomen was again dull.

The muscular resistance prevented the detection of a tumour or any enlargement of the spleen.

The heart was apparently natural; the lungs slightly emphysematous.

The urine was passed without pain, was faintly acid, contained much pus and a trace of blood.

The superficial abdominal reflex was slight and equal on both sides. (This observation was made by Dr. A. T. Myers, to whom we are indebted for the above notes.)

The treatment at this time consisted of the occasional administration of Dect. Aloës Comp., and opium fomentations.

The diet was a light one, and she was ordered 4 oz. of port wine.

Eight days later the pain was noticed to run down the coarse of the sciatic nerve quite as often as that of the anterior crural.

The patient had lost some of the pastiness of face, which was most marked at the time of her admission, and at the beginning of April she was ordered a mixture of nitric acid and cinchona bark, with two drachms of cod-liver oil thrice daily.

On April 14 it was noted that the pain was very severe at night; the urine had a sp. gr. of 1020, and contained much pus and a little blood. A few days later five minims of laudanum were added to the mixture.

By the end of the month the pain had very much subsided and the patient obtained good sleep, which had not previously been the case.

On May 14 a careful examination of the abdomen was made and a tumour was distinctly felt in the left renal region, but owing to tenderness its limits could not be defined. The pain was considerably increased.

The urine presented the same characters; it was very abundant.

Mr. Haward saw the case in consultation on the following day, but by reason of the great tenderness was unable to discover the tumour.

It was, however, determined to have recourse to surgical interference, and the patient was transferred to a surgical ward with that view.

The temperature during the time the patient remained in the medical wards was rarely above the normal 98·4° F., and the pulse was not accelerated.

Mr. Haward's Report.—May 19.—The patient having been placed under the influence of ether, and the abdominal muscles being thereby relaxed, the tumour in the left loin was easily felt, and was ascertained to extend from the posterior margin of the left lower ribs downwards about four inches, and from the outer border of the loin towards the middle line about the same distance.

An incision was then made in the loin as if for lumbar colotomy through which the surface of the tumour was exposed. It was evidently the dilated kidney, and it was easy to feel through the cortex the fluid contained in the pelvis of the organ. A bistoury was thrust through the cortex and about two ounces of offensive purulent fluid evacuated. The incision was then enlarged sufficiently to admit the finger, which being passed into the dilated pelvis at once detected a stone firmly fixed in the lower part of the cavity. With a little trouble the stone was dislodged by the finger-nail, and removed with a small pair of lithotomy forceps; several other small fragments were then felt and removed, and finally the cavity was explored with the finger and ascertained to be empty.

The capsule of the kidney was much thickened, but there still remained a considerable portion of the cortex, so that no attempt was made to remove the organ. The stone had evidently been fixed in the lower calyces of the pelvis, with which its shape corresponded. It weighed 47 grains and consisted of phosphate of lime (Plate V, fig. 3).

A drainage tube was inserted through the lumbar wound, but not into the kidney, and the rest of the wound closed with silver stitches. A pad of salicylated wool enclosed in carbolic gauze was applied to the part. Very little blood was lost during any part of the operation. Half a grain of opium was given on the night of the operation, and her diet consisted chiefly of milk.

May 20.—The day after the operation. She had passed a fair night. The urine contained a good deal of pus and a little blood. Evening temperature 101·6°.

May 23.—The greater part of the wound healed. She is greatly relieved and quite cheerful. She passes the full quantity of urine which contain mucus, pus, and a little blood. Sp. gr. 1030. As far as can be made out no urine passed through the wound. Evening temperature 102°.

From this time the temperature steadily declined and remained but little above the normal. Her appetite and pulse improved. The urine became clearer (sp. gr. 1015), and she began to gain flesh.

May 30.—She was given meat diet, and ordered cod-liver oil and steel.

June 10.—Was allowed to get up.

June 14.—There being scarcely any discharge, drainage tube was removed.

June 22.—There was a little burrowing of matter beneath the skin of the loin, for which an opening was made, and a drainage tube inserted for a few days.

July 16.—She returned home, feeling, she said, quite well, and having gained flesh considerably. There was still a little thin purulent discharge from the sinus in the loin, and the urine contained a small quantity of pus.

On Jan. 11, 1882, the patient presented herself at the hospital. The sinus in the loin had quite healed; she looked well, but complained of an uneasy feeling in the right loin.

Remarks.—Concerning the surgical treatment of this case I need only point out the very striking and immediate relief which followed the removal of the stone, although it had remained in the pelvis of the kidney long enough to produce a good deal of dilatation of that cavity; and that the case also shows, what was still better demonstrated by Mr. Morris's patient, whose case was related last session, that we need have no fear of cutting through the cortical tissue of the kidney for the removal of a stone.

It seems to me, therefore, that if the symptoms of stone in the kidney are well marked, there is no good reason to delay the operation for its removal.

Eliza J., æt. 56, a laundress, was admitted into St. George's Hospital, under Dr. Whipham's care, on Oct. 3, 1881.

She had had two children, one of whom died at an early age of "consumption."

The family history was otherwise good.

The patient had suffered from much pain on passing water for several years. "Gravel" was frequently passed with the water.

In 1879 for about a fortnight the urine contained blood, since then no gravel had been noticed.

When the gravel was passing pain was felt, chiefly in the right lumbar region, and also sharp smarting sensations in the urethra during micturition. There had been no pain running down the legs, and she was not aware that she had ever passed a stone; the bladder had never been sounded.

After the hæmaturia in 1879 she felt better, and went on with her hard work, without further hæmorrhage, but with very frequent micturition.

In October, 1880, she had an attack of vomiting, which lasted on and off for about a fortnight. After it had subsided she felt pain in the left lumbar region; she had hæmaturia

for a short time, but none, so far as she could say, since November, 1880.

The pain in the left flank and groin had frequently recurred since that date.

Micturition was frequent, and although the warning was short she had no complete loss of control of the sphincter; the bowels were, as a rule, very loose.

She continued her work until six months previously to her admission into hospital; since then the pain had increased, and was aggravated by movement. She was frequently sick, and lost much flesh.

The journey to the hospital in a cab caused her great pain.

She was a thin person with a dry, scurfy, inelastic skin, and on admission was suffering great pain from her recent drive. Examination of the abdomen was therefore postponed.

She was ordered a morphia draught at night, fish diet with strong beef tea and milk, and 6 oz. of port wine daily.

Oct. 5.—She had vomited almost immediately after taking solid food, but had retained the milk and beef tea. Her tongue was very dry and coated with yellowish fur; she was very thirsty. Pulse 96, weak; respiration quiet.

She complained of a constant gnawing pain in the left lumbar region extending to the groin, and occasionally, though rarely, shooting down to the left knee.

The urine was passed very often, in small quantities, but never involuntarily. It was alkaline with sp. gr. 1006, contained an abundance of pus, with much fragmentary cellular sediment, and a few crystals of phosphates and uric acid. No casts were seen.

Abdomen.—There was great muscular resistance and fulness on the left loin, but no distinct tumour was felt; in the right lumbar region there was much fulness, and great pain on pressure, but no distinct fluctuation could be made out. In front of the abdomen there was universal tenderness, and complete examination was impossible; she could only lie on her right side. She had rubbed the abdomen so much for the relief of flatus that the skin was sore.

A senna draught administered on the previous day had acted twice.

Oct. 6.—The pain had increased, and she had but little sleep. The lumbar swelling on the left side appeared to be somewhat softer than yesterday, and fluctuation was distinctly felt. There was some superficial hardness around the fluctuating area.

Mr. Haward was called in consultation, and as the patient was suffering so severely he, under ether, made an incision over the centre of the swelling, about the level of the anterior superior spine of the ileum, and on passing his finger into the wound found a tortuous cavity leading upwards. Septa were distinctly felt in this cavity, which were very suggestive of dilated calyces of the kidney.

Some fragments of lymph and some bloody fluid were squeezed from the wound, but there was no discharge of pus.

A probe was then introduced, but no calculus could be felt: a drainage tube was therefore inserted.

Oct. 7.—A copious discharge of pus occurred during the night, both the dressings and the bed were saturated. The relief from the operation was great, and she could allow a certain amount of pressure on loin and front of the belly.

There was some nausea, but no vomiting; she suffered from a rather severe headache.

The urine was alkaline and contained pus, but was free from blood.

The wound was washed out with a solution of carbolic acid (1 in 40).

On Oct. 11 the patient was much improved in every way, and had no pain in the loin or groin; the wound was surrounded by a slight blush. The urine was passed every two or three hours without pain. It was alkaline and purulent, but not bloody. The nausea had passed off, the appetite was better, and the patient was more cheerful. Next day she was ordered Haust. Quin. Acid., of the hospital pharmacopœia.

The note on Oct. 15 runs as follows: "For the last four days she has been worse; her appetite has fallen off and she is now very low."

There was much smarting and aching about the wound, and she suffered great pain when it was dressed. The wound granulated but slowly, and the discharge of pus was somewhat scanty. The blush around the incision persisted, and the tissues in the immediate neighbourhood were hard and very tender. The drainage tube, which was at first passed in an upward direction, could now only be passed downwards for about an inch, and caused her great pain. She was ordered a mutton chop, ale and milk (a pint of each).

On Oct. 19 and 22 a morphia draught was given at night, in consequence of the pain in the wound; the discharge was diminished.

She suffered at this time from distention of the belly by flatus.

On the 24th the drainage tube came out; the discharge was again profuse; the wound looked much more healthy, and the patient felt easier. She could lie on her left side with comfort, which she had hitherto been unable to do, but she was very weak. She was often sick, but her tongue was clean; her bowels were open; she took but little food.

The urine contained less pus.

Roast fowl was substituted for the mutton chop, and she was ordered Ferri et Quin. Cit. gr. vj, three times daily, with a morphia draught at night.

On Oct. 28, Mist. Spiritus Vin. Gall. ℥iij, was added to the diet. She stated that she had not been so free from pain for months. The vomiting continued. Pulse 88, weak.

By Nov. 1 the patient had lost ground; she was extremely weak and low. The discharge from the wound was profuse and had caused inflammation of the surrounding skin. Free application of vaseline was therefore ordered. There was slight pain on firm pressure to the left of the umbilicus.

On the day following Mr. Haward again examined the patient and passed a probe into the wound, but failed to detect a calculus.

A consultation with the other surgeons was held, and it was resolved that the incision should be enlarged and the wound explored under ether. Two pints of extra strong beef tea and a like quantity of milk were added to the diet.

On Nov. 3 the incision was extended in a curved direction, both forwards and backwards, and the wound was thoroughly explored, but the tissues were so matted together that it was found impossible to discover the relation of the abscess to the kidney. Mr. Rouse, however, thought he could feel the outline of the kidney at the bottom of the abscess. (The subsequent post-mortem examination showed that he was right.)

Under these circumstances no further proceedings were considered advisable; an oakum pad was therefore bandaged over the wound, and the patient was taken back to bed. No vessel required a ligature.

The patient never rallied from the operation in spite of a free allowance of stimulants, viz. brandy and port wine, of each 8 oz. She gradually sank on the evening of Nov. 4, and died at 10 P.M.

At the autopsy, 64 hours after death, the lungs were found

to be somewhat congested and the liver fatty; all the viscera were much decomposed.

The left kidney lay in a cavity, which communicated with the surface of the body in the left lumbar region by a large irregular opening. This cavity was partly filled with thick brown offensive pus, and the tissues surrounding it were much thickened and bound together, the results of chronic inflammation, but no calculus was found in the cavity.

The upper portion of the pelvis of the kidney was much dilated and communicated with the above-mentioned cavity by an irregular aperture through which one or two fingers could easily be introduced.

The kidney was firmly united in front to the surrounding tissues.

There was no communication between the perirenal abscess and the peritoneal cavity or intestines.

The vertebræ and ribs were healthy.

Two or three small pieces of calculus (about the size of a pin's head) were found in the calyces of the kidney.

The right kidney contained a large branching calculus which extended into the calyces, and almost entirely blocked the ureter.

The results of the post-mortem examination in this case seem to show that a calculus had been formed in the pelvis or calyces of the left kidney, that it had caused ulceration of the pelvis, and that, through the ragged opening found, it had passed into the tissues surrounding the kidney. It seems probable that the calculus or calculi which may thus have escaped, were dissolved by their long immersion in the pus of the abscess thus formed.

Remarks by Mr. Haward.—In this case the symptoms seemed to point to the abscess having originated in a dilated and suppurating kidney which in all probability contained a stone, for although the abscess made its way to the surface low down in the loin, a sinus led upwards in the direction of the kidney, and at the end of the sinus distinct septa could be felt like those between dilated calyces. My hope was, therefore, that through a free incision in the loin I might have been able to have found and extracted a stone, or if the kidney were disorganised to remove the entire organ.

The post-mortem examination showed, however, that the stone had already escaped from the kidney, and that the suppuration and inflammation which had existed so long around the organ had so greatly increased the thickness of, and

matted together, the tissues in which the remains of the kidney were enveloped that it would have been impossible to have removed it.

Although the existence of pain on the right side made it not improbable that the right kidney contained a stone, yet the pointing of the abscess in the left loin induced me to believe that the symptoms were chiefly referable to that kidney.

Remarks by Dr. Whipham.—In cases of renal calculus much benefit may doubtless be obtained from perfect rest, and it cannot be doubted but that many patients under such treatment derive permanent good, probably owing to the fact that the stone becomes so firmly impacted that it ceases to cause trouble during the remainder of the patient's life. When the pain or other symptoms indicative of stone are not especially acute, the treatment suggested by Dr. Roberts, of Manchester, viz. that of attempting to dissolve the stone by altering the chemical reaction of the urine by the administration of drugs, should certainly be tried before recourse is had to active surgical interference. But when the probable nature of the calculus is shown by microscopical examination of the urinary deposit to be of such a nature that the above method of treatment is likely to prove inefficacious, it would seem to be the duty of the physician to call in the aid of the surgeon to remove, if possible, the cause of the disease.

Surgical interference, moreover, seems to be still more called for when, no matter what the chemical composition of the stone may be, symptoms of suppuration are present. For then, so long as the source of irritation remains, but little can be expected from the action of drugs.

The cases reported bear out this opinion, and the satisfactory result of the operation in the first case amply justifies the course of treatment which was adopted; while in the second case the danger of postponing operation is clearly demonstrated. Had the patient, Eliza J., been fortunate enough to have come under treatment at an earlier date, there seems every reason to believe, judging from recent success in the operation of nephrotomy, that her life would have been, if not saved, considerably prolonged. When the clinical history clearly points to stone, when pain is severe, and when the patient's health is suffering in consequence, it is, with the recent success before us, impossible to resist the conclusion that an attempt should be made to remove the calculus by operation in the earlier stages of the disease, before such a grave complication as dilatation or suppuration of the kidney can occur.

XXII.—*A Case of Nephrectomy for Scrofulous Kidney.* By JAMES F. GOODHART, M.D., and C. HILTON GOLDING-BIRD. *Read March* 24, 1882.

A MAN, æt. 27, was admitted into Guy's Hospital, under Dr. Goodhart's care, on Feb. 1, 1882, complaining of pain in the right lumbar region. He was employed in the Post Office cleaning instruments, and has been frequently exposed to draughts and changes of temperature. His family history is good; his own children, four in number, are healthy, and he himself has never had any illness, excepting "low fever" many years ago. No history of syphilis, gonorrhœa, or stricture. Fifteen months before his admission he began to feel slight aching pains in the lower part of the back. He occasionally had to leave work early on account of it, but he never laid up. No local treatment relieved it. Eight weeks ago it became much worse, and when passing urine, of a cutting character. He now left work and was confined to his bed. His urine began to get thick and he lost his appetite. Four weeks ago the pain localised itself more in the right lumbar region, and subsequently came on only with micturition, but continued for some time afterwards. He feels cutting pains in the right inguinal region. The quantity of urine has been much diminished for the last eight weeks.

The man was decidedly emaciated, very pale, and looked proportionately ill; his eyes being sunken and his eyelids somewhat pigmented. There was no excess of pigmentation in other parts of the body. I may shorten matters by stating that there was no evidence of disease in any of the viscera, except that connected with the diseased kidney. On placing the hand behind in the left lumbar region, and pressing from the front deeply, a distinct tender swelling corresponding to the lower end of the kidney could be moved between the two hands. It produced no fulness whatever of the abdomen. The urine at the same time contained a copious deposit of thick greenish-yellow pus, was alkaline, sp. gr. 1024, albumen $\frac{1}{12}$. The sediment contained plenty of pus corpuscles, and became ropy upon adding Liq. Potassæ.

He was ordered some iodide of iron and cinchonine, and under this treatment he expressed himself to feel better. His pain was easier, but he still complained a good deal of micturition. Moreover, his temperature oscillated between 100° and

104° in a septic manner, and at one of my visits I found that although the urine had not decreased in quantity, the renal tumour had increased very considerably in size, and it was evident that although he was passing plenty of pus in his urine, there was no sufficiently free outlet for the discharge. The case was clearly, therefore, one requiring surgical interference. Mr. Golding-Bird, accordingly, saw the case with me, and we discussed together the alternatives, nephrotomy and nephrectomy. Upon general grounds I believe it to be a sound rule of practice that, when nephrectomy is determined upon or must ultimately be necessary, the operation should be conducted in two stages, one of incision and exploration some time antecedent to the major proceeding. For these reasons:—one, that the operation is always conducted much in the dark as regards the other kidney, and by withdrawing the diseased kidney from the urinary tract as one does in some, though admittedly often a very incomplete, measure by establishing a free drain in the loin, an indication may possibly be gained as to the state of the other kidney. The other, that a free discharge in the loin allows the diseased organ to shrink and contract away from important structures, and by so doing reduces the magnitude of the operation of excision and renders it more easy of accomplishment. But the present case justified, I think, a departure from this rule upon more than one ground, first, because the disease was certainly the so-called scrofulous kidney, and secondly, because the patient was in a state of suppurative fever and was already considerably emaciated.

As regards the first point—the nature of the disease—I am aware that some high authorities deprecate resort to nephrectomy when the disease is scrofulous, but I would venture to dissent from that opinion, first, because scrofulous kidney is often a local disease; there is even some evidence to show that it may be born of local causes, such as stricture or cystitis; and, secondly, because it appears to be a fertile source of a general tubercular infection. This is a matter of belief, no doubt, more than of demonstration, but having seen more than one case of scrofulous kidney which culminated in general tuberculosis many months after the original disease had commenced, and taking all the evidence now at hand of tubercular infection from diseases of this nature, the belief has strong grounds to support it. Moreover, Mr. Morrant Baker has performed nephrectomy at the Evelina Hospital for scrofulous kidney, and the child was much relieved and improved in health by

the operation for many months afterwards. So that, although the result of the operation in this case was untoward, as Mr. Golding-Bird will subsequently have to tell, I am hardly the more indisposed than before to recommend the adoption of similar proceedings in undoubted cases of scrofulous kidney.

As regards the man's condition, he was not in a state to admit of any prolonged drain. From his aspect, his fever, his emaciation, it was quite probable that the evolution of some general tubercular condition might already be in progress; and it was evident that if anything was to be done it must be done quickly and completely.

The conditions found post mortem, I think, justify that decision. The disease turned out to be local, except that the bladder had become slightly infected, and he was therefore suffering from the disease and the consequent fever, and that alone.

From the Surgical Report of Mr. A. J. Carter.

The patient was transferred under the care of Mr. Golding-Bird into Lazarus Ward on February 13. He was then in much pain and able to lie, on account of it, only upon his back or left side. The renal swelling could be felt on palpation from the front, but there was no observable tumour in the loin. During the succeeding night the patient passed a large quantity of apparently pure pus, and from that time to the day of operation the swelling did not return to its original size, nor was the pain as severe as it had been. The operation was performed on February 17 under carbolic spray. A vertical incision was made, from over the last rib to the crest of the ilium, just outside the line of the erector spinæ, and extending through all the soft parts down to the subperitoneal fat, with the exception of the quadratus lumborum. This muscle was exposed, but being only small it was not necessary to incise it; its sheath, however, was opened. There was no bleeding to speak of. The incision was afterwards supplemented by another 1½ in. long, which ran transversely forwards from the centre of the first vertical one. On tearing through the subperitoneal fat a tense, bluish elastic swelling was exposed, which yielded pus on being punctured with a needle. By means of the finger the swelling was explored and made out to be an enlarged and expanded kidney; it was at once resolved to extirpate it. As far as possible it was therefore detached by the fingers from its surrounding investment of fat and cellular tissue, and while its lower end could be handled the upper

could not be reached. This was due not only to the length of the tumour but also to the fact of the patient being particularly long-chested, and thus very little room was left between the ribs and the ilium. After several ineffectual attempts to raise the lower end of the organ out of the wound and thus allow of its being dragged down, and after tapping and drawing off about 6 oz. of very fetid pus, without, however, materially diminishing the size of the tumour, it was determined to excise a portion of the last rib, an inch of which was then resected subperiosteally. The upper end of the tumour was now within reach, and detached from its connections, the rough, irregular supra-renal capsule being very plainly felt. There was no difficulty in freeing the front and back aspects of the tumour beyond that attendant on its size. A further attempt to raise the kidney from its bed was now made but failed; it was quite immovable. A stout silk ligature was therefore placed round the "pedicle," but it was found impossible to tighten it, it being apparently resisted by something very unyielding.

On further examination it was discovered that the cause of this was an immensely thickened and somewhat rigid ureter, which had been felt early in the operation but, owing to its size, not recognised. It was now ligatured and divided, and then without any material difficulty two stout carbolised silk ligatures were placed round the pedicle of vessels and tied. After division of the ureter the tumour could be raised somewhat from its bed, and the adjustment of the ligatures was thus facilitated. It was removed by dividing the pedicle ¾ in. from the ligatures: there was no hæmorrhage. A large cavity was left, invested mostly by the unwounded but bruised peritoneum; it was partially plugged with carbolised gauze, and antiseptic superficial dressings were then bandaged on.

The whole operation was tedious, occupying one hour and three quarters, the loss of time being due to the ineffectual attempts made both to reach the upper end of the organ and to raise it somewhat from its bed. Had the means that were afterwards taken to permit of these steps been adopted from the first, much time would have been saved. The excision of part of the twelfth rib on the one hand, and the ligature and division of the thickened ureter on the other, gave room for manipulation and mobility to the tumour.

During the operation the pulse showed no sign of failing, but on removal of the patient to bed he became at once very collapsed. Stimulating enemata and subcutaneous injections of ether and brandy roused him for a time, but he died in

about four hours' time, having never really rallied. The loss of blood was small, only one vessel, and that in the parietes, had to be secured.

Post mortem.—The ureter on the right side was very thickened and rigid, and contained curdy purulent matter. Its papilla of entrance into the bladder was ulcerated, and the vesical mucous membrane was thickened and opaque. In the prostate was some cretaceous (? strumous) material. The left kidney and ureter were perfectly healthy, as were also all the other organs; there was no evidence of tubercle anywhere.

On the right side the renal artery had been cut 1½ inches from the aorta, and the renal vein half an inch from the vena cava. The peritoneum was uninjured, and in the cavity of the wound there was only a small diffused blood-clot. The right suprarenal capsule and (apparently) the sympathetic nerves passing to it were exposed. There was much ecchymosis (subperitoneal) around the ascending colon.

The kidney removed weighed 10 ounces. It was lobulated and mottled on its surface, apparently composed of a number of rounded masses of diseased cortex. A section showed the usual characteristic appearances of the scrofulous kidney, the glandular structure being hollowed out into large cysts containing curdy pus, and the pelvis being converted into a ragged-walled cavity of yellow colour. The walls of the cysts in like manner were rough from similar changes, and the kidney structure outside them pale and yellowish-white, as in the 'large white kidney.' The ureter was much thickened, and on transverse section was seen to be nearly occluded from the thickening of its mucous and submucous layers by yellow scrofulous material.

Remarks.—The post mortem showed what might have been expected, considering the comparatively short history of the disease. As yet no other organs had become affected, and while some surgeons, Professor Agnew, for example, express an unequivocal opinion against extirpation of the organ in these cases of tuberculous pyonephrosis, it does appear to us that the operation is justifiable if only on the ground that it may save the patient from years of suffering and invalidism; the future of these cases being progressively downwards.

The most difficult obstacle that the surgeon has to meet is the cachectic condition of the patient, to wait for which to pass off would be tantamount to waiting for the patient's death, since it is due to his disease—an undoubtedly local one at first.

The cause of death in this case would suggest the propriety in similar instances of perhaps incising the kidney first, and relieving the patient of the matter it contains, and of establishing a drain in the back, and then, having allowed him to recover under more favorable circumstances, to proceed at a later date to nephrectomy; but, as Dr. Goodhart has already remarked, the necessities of this case appeared to us to demand total relief at once.

How far, too, the collapse may have been due to carbolic acid is quite a legitimate point for discussion. For the greater part of two hours was the spray playing over and into a large cavity presenting a recently wounded surface, one half of which was the subserous aspect of the greatest lymphatic sac in the body, the peritoneum.

Though the pulse was watched throughout, no depression was observed either during the separation of the kidney from the suprarenal capsule nor at the ligature of the renal vessels. The operative points brought out by this case are, at an early stage to divide the ureter and thus ensure the greatest amount of mobility for the organ, and then, if room enough cannot be gained by the usual incisions of the soft parts, to resect part of the last rib. As in all capital operations where shock will be felt, much depends upon expedition, and the removal of a piece of rib is probably less prejudicial than the prolongation of the operation by fifteen or twenty minutes.

XXIII.—*Case of Extirpation of the Kidney for Calculous Pyelitis.* By T. Barlow, M.D., and R. J. Godlee, M.S. *Read April* 14, 1882.

SARAH T., æt. 57, a married woman, and a laundress by occupation, was admitted into University College Hospital on June 13, 1881. She had applied for relief because of severe pain in the right loin and back.

There was nothing of importance in the family history, nor in the personal history previous to that of the present illness, beyond the following facts:—She had worked hard (12 hours a day) at her occupation, had had sufficient food, and was in the habit of taking this perhaps excessive quantity of alcohol,

viz. two pints of beer and a quartern of gin daily, and, in addition, spirits whenever she could get them (probably as often as four times a week).

Another point to be noted, which had escaped her memory, but was afterwards elicited, was that twenty-six years previously, after some cutting pains in the loins, she had passed a small stone. Since that time, however, she had never, to her knowledge, passed either a stone or gravel, nor could she remember having done so previously.

She described her present trouble as beginning three months ago with a cold and cough, which caused shooting pains passing from the right flank to the left. After this there was continuous gnawing pain in the right loin and back, and sometimes pricking sensations in the same regions. At this same period the patient first noticed that her water became thick and milky, and that she passed it more frequently, having often to get up at night for this purpose. Soon after this she said that shooting pains came on in the right lower limb, followed by swelling, which, after a fortnight, occurred in the other limb also. She stated that there was no puffiness of the eyelids at any time. There was slight œdema of the legs and feet when she was first seen in the out-patient room on June 9, but this had disappeared by the day of admission. She had kept about, though suffering much pain, up to the time when she came into hospital.

She was a fairly healthy woman for her years, though her face was a little drawn and sallow, and her mucous membranes a little pale. Arcus senilis was present to a slight degree, but there were no tophi nor any signs of gout. Her finger-joints, however, were somewhat enlarged, and there was a soft systolic murmur at the apex, but no hypertrophy of the heart. Her tongue was a little furred, but the appetite good; she complained sometimes of thirst; her bowels were regular.

Her abdomen was large and flaccid, and obviously more prominent on the right side than on the left; but there was no ascites nor tympanites. A tumour could be felt filling the right flank and extending from the margin of the ribs to within a finger's breadth of the edge of the iliac crest. On the whole this tumour was smooth and rounded, and elongated from above downwards; but, at the lower and anterior part, there was an ill-defined projection harder than the rest and slightly prominent, which we judged at the time (and as the event proved correctly) to be caused by a calculus in the kidney. The tumour could be moved a little forwards when

grasped between the hands, and the colon could be traced along its outer margin and the upper part of its anterior surface. This mass was obviously the right kidney, and the probable diagnosis appeared to be that calculous pyelitis was present with great thickening of the capsule. The left kidney could not be felt at this time, but subsequently its lower edge was just detected. There was nothing else noteworthy in the abdomen.

The condition of the urine was carefully investigated. During the first twenty-four hours after admission she passed 71 oz., and whilst she staid in hospital the largest amount secreted on any one day was 94 oz., the smallest 36 oz. The specific gravity varied from 1010 to 1022. The reaction was either faintly acid or neutral. It was free from putrefactive smell and no bacteria were visible under the microscope. A large quantity of pus was present, but differed in amount in different specimens from $\frac{1}{9}$th to $\frac{1}{40}$th by volume. The urea secreted in twenty-four hours, estimated by Duprè's method, varied from about 243 gr. to 368 gr.

The patient was kept in bed for about a fortnight on mixed diet, taking a pint of Buchu infusion during the day. She had a variable amount of pain, which gave her somewhat restless nights, but no uræmic symptoms developed. She was then allowed to get up in the afternoon for a short time, but as her feet swelled a little she was ordered to bed again. The temperature was, as a rule, normal in the morning and about 100° in the evening.

Nineteen days after admission the patient was put under the influence of chloroform with a view to further examination by means of palpation and the introduction of a needle. On the suggestion of our colleague, Mr. Barker, the needle of an aspirator was introduced at the point and in the direction recommended by the late Simon, of Heidelberg, viz. midway between the ribs and iliac crest, at a distance of eight centimètres from the spine for the point of introduction, the needle being directed towards the umbilicus. It distinctly grated against a stone, but no pus was withdrawn on making a vacuum, and it was found on withdrawing the needle that its point had become plugged.

The case was now fairly stated to the patient. It was pointed out to her that her malady would almost certainly increase, that she might live for some months, or even longer; but that her pain, which was considerable, would probably not diminish, while her disability for work would continue

and, indeed, that she could not expect to get about again. On the other hand, she was told that, while an operation, if successful, might permanently relieve her symptoms, it would in any case be a very serious one and might prove almost immediately fatal. We may add that we did not strongly urge the operation, because, although the patient was, we believed, fairly healthy, we could not forget that she was fifty-seven years old, and that she had probably taken alcohol in slight excess.

After a few days' consideration she elected to have an operation performed.

Assuming, as we did, that besides the calculous pyelitis there was considerable disorganisation of the kidney, and not improbably more than one stone of complicated shape, we believed that no interference with the organ short of its complete removal offered any prospect of a satisfactory result.

On July 15th, with the help of our colleague, Dr. J. Williams, the kidney was removed by abdominal section, with strict antiseptic precautions. The incision was made in the middle line and extended from three inches above to three inches below the umbilicus. There were slight adhesions of the omentum to the abdominal wall, but no others in the peritoneal cavity. After introducing the hand into the left loin and thereby ascertaining that there was no palpable disease of the left kidney, the small intestines were drawn to the left side and covered by a flat sponge. By this means the lower part of the tumour was brought into view. As it appeared impossible to pull the ascending colon inwards or the transverse colon downwards with safety, the peritoneum was torn through with the fingers and forceps between the ascending colon and the mesentery, which procedure caused scarcely any bleeding.

The thickened tissue around the kidney was thus exposed, and it was found so dense that it was impossible to remove the mass entire; but after dividing several layers of the adventitious capsule attached to it, the remainder of the mass was gradually enucleated by the hand. This process was easy enough towards the middle line, the duodenum being readily freed, but above and behind it was exceedingly difficult, on account of the toughness of the inflammatory tissue. The greatly dilated ureter was torn through accidently, but the upper end was tied and only a drop of pus escaped. In isolating the pedicle, which was very high up and ill-defined, the suprarenal capsule was torn. The pedicle was transfixed

with a large and strong blunt aneurysm needle armed with stout catgut, but this broke in tying, necessitating a second transfixion, during which some venous hæmorrhage took place. This time Chinese silk was used, and the bleeding stopped on tightening the ligatures. After cutting away the kidney one small artery spouted and was tied separately.

Very little blood was lost during the operation, and there was scarcely any to mop out of the pelvis; about twelve silk ligatures in all were used. The stitches were applied as in ovariotomy, and the antiseptic dressing was secured by plaster and a flannel binder.

There was remarkably little shock, considering the severity of the operation, which had lasted rather more than an hour and a half.* The pulse was 84 and of good strength.

A suppository containing 1 gr. of morphia was introduced into the rectum at 11.15 a.m. At 3.45 p.m. the patient complained of some pain in the epigastrium; there had been slight retching, but no vomiting; she was quite sensible; pulse 84 and good, temperature 98·4°. Three oz. of urine, which were drawn off with a catheter at 1.30, were loaded with pus, no doubt squeezed out of the kidney at the time of the operation. At 5.30 p.m. the pulse was 84 and temperature 100°. At 7.30 p.m. about 3 oz. of urine were again drawn off, containing a smaller quantity of pus, and this was afterwards observed to be black from carbolic acid. Twenty drops of laudanum were injected into the rectum about 10 p.m.; the condition was then unchanged; the pulse was 88, and the temperature 99°. There was a little retching and pain in the abdomen, on account of which 20 more drops of laudanum were injected into the rectum.

At 8.30 next morning we were called to the patient, and were told that she had slept quietly, which was the reason why the temperature had not been taken until 7 a.m., when it was found to be 102°, the pulse being 112. About this time the nurse said she appeared to collapse. When we saw her she seemed to be sinking, breathing slowly but deeply, with a moderately strong pulse of 112; the skin hot but moist; the pupils small but not pin's point, and not reacting to light. She tried to put out her tongue when told to do so, but said nothing, except once or twice some scarcely intelligible ejaculation. The breathing then became gradually slower and more shallow. At 7.30 a.m. 1½ oz. of urine (the secretion of

* Kidney cleaned 1 hr. 10 min.; pedicle tied 1 hr. 20 min.; dressing commenced 1 hr. 35 min.

twelve hours) had been drawn off, containing very little pus; but at 8.45 the bladder was found to be empty. We endeavoured to revive the patient by giving strong coffee by the mouth, and the same with a little alcohol and ammonia by the rectum. Ether was injected subcutaneously. A hot bottle was applied to the left loin, and the bladder was washed out with warm water with the view of stimulating the action of the remaining kidney. But all these means proved useless, and the patient gradually sank, having survived the completion of the operation about twenty-four hours.

At the *post-mortem examination,* some thin lymph was present beneath the wound in the abdominal wall and around the seat of operation; some ounces of red serum (no doubt chiefly a post-mortem effusion) were found in the latter situation, but there was no sign of general peritonitis. The parts around the pedicle were firmly amalgamated, and no bleeding had occurred; but the ligatures after the removal of the structures involved were loosened (as indeed has been often observed in similar cases). The pedicle was very short, and on opening the cava, this vessel was found to be actually puckered by the ligature. There was also a small rent, about ⅛ inch long, just above the entrance of the renal vein, from which no hæmorrhage seemed to have occurred, but as it was closed by a small ante-mortem clot, it had clearly been produced during life. The cicatricial tissue involved the lumbar plexus; the end of the ureter was open, but no pus had escaped, nor could any be squeezed out from it. The surrounding viscera were practically uninjured. The left kidney was to the naked eye normal, and under the microscope showed only some granular condition of the epithelium. The other organs were healthy, with the exception of the heart, and here there was only some fibrous thickening of the mitral valve. No ante-mortem clots were found in the heart or elsewhere.

Remarks.—Without entering into any lengthened discussion, we may state our opinion that the cause of death in this case was suppression of urine; but we fear that two important factors in producing the fatal result were the absorption of carbolic acid by the peritoneal surface, and the opium which was administered to the patient. It may doubtless be maintained that the carbolic acid and the opium conjointly had much to do in causing the suppression of urine, but it is only fair to bear in mind that this result not unfrequently follows other operations involving the peritoneal cavity, as well as those interfering with the urinary tract.

In regard to the justifiability of the operation we have nothing to add to what appears in the statement of the case, except that the condition of the patient for some hours afterwards shows, at least, that she did not die of shock, and, as we think, that she had a fair chance of recovery. We do not wish to maintain that the abdominal section is always to be preferred in cases of this kind, but in this particular instance we believe that, from the size of the kidney and the density of the adhesions, the lumbar operation would have been attended with very great difficulty, and would have involved very serious risk to the colon and perhaps to the duodenum.

We must not conclude without expressing our thanks to Mr. Pasteur, then House-Physician at the University College Hospital, for his valuable help, more especially in regard to the examination of the urine.

XXIV.—*Pyelitis: Exploration of the Kidney; partial removal: Death from suppression of urine.* By Howard Marsh. *Read April* 14, 1882.

A BLACKSMITH, æt. 35, came under my care, in St. Bartholomew's Hospital, on October 24, 1881. All the history I could obtain from him was that he had felt pain, often very severe, in the right loin for three years, that for eighteen months the urine had been thick and strong-smelling, and had deposited a copious light-coloured sediment, and that he had never noticed any blood. On admission he was pale, and his countenance was worn and anxious. The urine showed pus equal to a third of its bulk on settlement, and also a small quantity of blood. It was strongly ammoniacal and had an odour resembling, though far transcending, that of putrid eggs. Urine was passed every hour, sometimes every half hour, with considerable pain and straining. He complained of pain shooting down from the right kidney in the course of the ureter to the testis. There was some tenderness on firm pressure over the kidney, but nothing abnormal could be felt either in the loin or anteriorly during careful examinations under ether. There was no stricture of the urethra, and no stone in the bladder. The patient was kept in bed, and in

order to ascertain whether his symptoms depended on any affection of the bladder in combination with disease of the kidney, the bladder was washed out every morning, for ten days, with luke-warm water, and then injected with a solution of one grain of quinine to an ounce of water, slightly acidulated; and subsequently, for ten days, with water gradually raised to a temperature of 120°. But neither method materially improved the condition of the urine. He was afterwards kept for three weeks on a pure milk diet, but without benefit.

After having been in the hospital for two months he was about the same as on admission.

His condition, however, varied a good deal. On some days he had little pain and the urine was almost clear. Then he would be attacked with severe pain in the right loin reaching to the testis, and accompanied with nausea and rigors, and a temperature of 101° to 102.° After this condition had lasted from six to twenty-four hours he passed a quantity of scalding, and horribly fetid urine, loaded with pus, and then was much relieved again. These attacks recurred every five or six days. The case was regarded as one of pyelitis, probably depending on calculus, although the existence of calculus was rendered doubtful by the absence of any considerable quantity of blood in the urine, and also by the absence of pain of a markedly paroxysmal character. As all other means had failed, exploration of the kidney was proposed, and the patient was very anxious this should be undertaken. But his palor and the low specific gravity of the urine—never above 1015—made me very unwilling to perform any operation on him. At length, however, two days after he had suffered a severe attack of pain and frequent micturition, I exposed the kidney by an oblique incision in the loin. I found that the fat and areolar tissue in which it was embedded was firm and dense from chronic inflammation, and very closely adherent to its capsule. Having—though not without considerable difficulty—stripped off the capsule from the presenting part of the kidney, I felt its surface soft and yielding, as if its interior was dilated and sacculated. An incision into the cortical substance was then made and a large quantity of extremely fetid urine, similar to that passed by the urethra, flowed out. No stone could be detected. On further examination it became evident that the whole kidney was converted into a number of pouches lined with a membrane discharging fetid pus. Although the risk of doing so was only too clear, it was thought better to attempt the complete removal of the kidney,

for its condition seemed so bad as to exclude all hope of the patient's recovery if it were left. I found, however, as I stripped off the capsule that the kidney was so large and so firmly embedded, that its enucleation could not be effected. I therefore transfixed what had been exposed, and included it in a strong double ligature and cut it away with curved blunt-pointed scissors. When I cut into the kidney bleeding was very slight, nor was it at any time formidable. Complete suppression of urine followed the operation, and the patient died at the end of about thirty hours.

At the *post-mortem examination* the remaining part of the right kidney and its ureter were found so firmly embedded in dense cicatricial material that they were dissected out only with difficulty. The upper part of the ureter was much dilated and thickened. Four inches below its commencement it was so narrowed that its canal would only admit an ordinary probe. The kidney—about one fourth part of which had been removed at the operation—was converted into numerous sacculi, in the walls of which, however, some remains of renal structure could still be traced. From the appearances observed it seemed probable that the dilated and sacculated conditions of the kidney had resulted from obstruction of the ureter, the obstruction of the ureter had probably followed the healing of an ulcer, perhaps of a tuberculous character. There is, however, room for some difference of opinion as to the original nature of the disease in this case. (The kidney and the ureter with the bladder were exhibited.) The opposite kidney weighed 6 oz. Its capsule was adherent and there were two or three small cysts on its surface. On section its structure looked somewhat confused and cloudy, but its condition was not such as to indicate advanced disease.

Remarks.—When so important a subject as the treatment of the kidney by operative interference is being studied by the light of experience, it is highly desirable that every example should be recorded. The Society, therefore, will not expect me to apologise for relating an instance of failure. This patient's condition was hopeless if he was left, and I felt that to refrain from operative interference might be to withhold the only means by which his life could be saved. Believing that suppuration in the pelvis of the kidney was present, there seemed a fair prospect that I might do good either by removing a stone, or by establishing free drainage, or by removing the kidney if it were found to be extensively diseased. It may be a warning for future cases that the state of the

kidney proved to be much worse than there had seemed reason to anticipate. Although I had been unable to feel it in a very careful examination under ether, it was dilated to a very large size; its secreting structure was almost completely destroyed, and its capsule was very firmly adherent both to its surface, and also by extremely dense and firm connections, to adjacent parts. Perhaps sufficient weight was not attached to the fact that the symptoms had existed for as long as three years. Perhaps, also, I fell into an error of judgment in respect to the condition of the urine. For, while this pointed to urgent need for interference, it ought, at the same time, to have been taken to indicate that the kidney was so extensively diseased as to render it doubtful whether the case was suitable for operative treatment from the loin. This doubt, had it been strongly entertained, would have raised the question of resorting to abdominal section, in order to secure room for any proceeding that might prove to be necessary. To this, however, I should not at the time, whether rightly or wrongly, have hesitated to return an answer in the negative. The patient's general condition was so unsatisfactory that this would have seemed too formidable a proceeding. Yet had I undertaken it I should at least, on ascertaining the condition of the kidney, have been able to effect its removal. And here there arises a very important point. It is easy to expose the kidney in the loin so as to examine it, or remove a calculus from it. These proceedings are already established, and there can scarcely be a doubt that they will be frequently resorted to, and that they will yield a large measure of success. As to the operation of removing the kidney, further experience alone can show in what cases it should be resorted to, and what is the degree of success with which it is likely to be attended. This much, however, is clear. The lumbar incision does not afford sufficient space for the removal of a kidney of large size, or of one that is firmly bound down by adhesions. Neither does it provide room enough in which to deal with deep hæmorrhage—a complication which one would think will not be of very rare occurrence. These considerations seem to render it very doubtful whether it will not ultimately be found that the safest way of removing the kidney is by abdominal section through an incision just external to the rectus muscle, a proceeding which—as Mr. K. Thornton's case, related at the last meeting, shows—may be attended with complete success. In the present case I found myself in the dilemma of having to decide between leaving a kidney that was disorganised and attempting its removal through an

incision which gave me very insufficient space. I now regret that I adopted the latter course. It would probably have been better to have cut away enough of the presenting part of the kidney to provide free drainage and the means for washing out its interior. This proceeding would have been unattended by serious hæmorrhage, for scarcely any occurred when an exploratory incision was made through the remains of the cortical substance early in the operation.

The removal of the kidney obviously differs, in a highly important respect, from the removal of any large tumour. It involves not only the risks of the operation itself, but also the danger of suppression of the secretion of urine by the opposite kidney. And this is a danger of so formidable a nature that all other considerations must be subordinated to it. Although, at the post-mortem examination, the left kidney appeared fairly healthy, complete suppression of urine immediately followed the operation. While cases that have lately been reported to this Society prove with what complete success stones of small size may be extracted in young subjects from kidneys that are structurally healthy, and while other instances have demonstrated that in young subjects the kidney may sometimes be successfully enucleated, the present case, as well as others that have recently occurred, goes to show that the removal of the kidney in persons over thirty must be regarded as one of the most dangerous proceedings in the whole range of legitimate operative surgery.

XXV.—*Case of Threatened Suppression of Urine after Ovariotomy: Arms packed in cold wet towels: Recovery.* By J. Knowsley Thornton, M.B., C.M. *Read February* 10, 1882. *Communicated by* W. A. Meredith.

J. W., æt. 39, married and mother of two living children, the youngest 7½ years old, was admitted under my care at the Samaritan Hospital in October, 1880.

History.—Has never been strong, but has had no serious illness. In the last six years has had three stillborn children

and two miscarriages, the last at the seventh month in April of present year. Menstruation normal up to the time of this last miscarriage, but since that event she has had frequent and irregular coloured discharges. First noticed increase of size at the commencement of her last pregnancy in September, 1879, and was too large for the period of gestation and rapidly increasing, when she miscarried in April, 1880. After the miscarriage increase of size was more gradual but continuous, and early in October, 1880, Dr. Pierce, of Denbigh, tapped her and removed twelve quarts of greenish fluid.

Condition on admission.—Looks older than her age, and Mr. Meredith, who kindly took the first notes of her case for me, remarked on the peculiar waxy appearance of the skin. Abdomen occupied by a large fluctuating tumour, diagnosed as right ovarian, with close connection with a rather large sub-involuted uterus.

Urine scanty and of deep orange colour, 15 oz. in twenty-four hours, acid reaction, sp. gr. 1023, no albumen.

Skin dry and does not act readily.

I performed ovariotomy on November 4, 1880, and removed a tumour of the right ovary closely connected with a large uterus, and with some unusually firm parietal adhesions. It weighed with its fluid contents 28 lbs. The pedicle was secured by short ligatures, according to my usual method. There was a good deal of sponging to free the peritoneum from the blood from the parietal adhesions. The operation occupied nearly an hour. Eight hours after the operation, 4 oz. of pale urine were drawn off, temperature having then risen to 102·2°, with pulse 124, and respirations 24 to the minute. Soon after this the skin began to act well, and the temperature, which had risen to 102·6°, fell to 101°. The day after the operation the evening temperature was again 102°, and later it mounted to 103·2°, pulse 112, resp. 20. The urine was now scanty and of a deep mahogany colour, the bladder irritable, so that the catheter had to be passed very often. I ordered Tr. Digitalis ♏x with citrate of potash gr. xv in beef tea enema every three hours. The following day the urine, though still scanty, was more free, and it was loaded with lithates. The temp. 101°, pulse 92, resp. 20. The next day (3rd after operation) temp. was 100·6°, pulse 88, and free metrostaxis came on. All irritability of the bladder appeared to have passed off, and the quantity of urine had increased to over a pint in the twenty-four hours.

I should have mentioned that the patient told me soon after

the operation that opium disagreed with her, and as I thought it might check the action of skin and kidneys, I discontinued its use when I ordered the digitalis. Usually my patients after ovariotomy have from 15 or 20 drops of laudanum by the bowel every eight hours till all chance of peritoneal irritation is over.

On the 4th day the temp. had fallen to 100°, pulse 88, and the metrostaxis continued free. The nurse, contrary to my orders, gave in beef tea enema Tr. Opii ♏xx, and it made the patient very sick, and this sickness was followed by suppression of the metrostaxis and rapid rise of temp. to 104°. I was sent for in the early morning of the 5th day and found pulse 112, skin hot and dry, and bladder very irritable. I passed the catheter and drew off an ounce of dark urine, which was free from albumen, but contained some epithelial tube casts. I ordered the digitalis and citrate of potash, which had been discontinued, to be given again every three hours, and the face, hands, and arms to be frequently sponged with tepid water. At the ordinary morning visit I found sickness more frequent and bladder very irritable, and I had the bowels well cleared by simple enema and a large hot linseed-meal poultice applied over the kidneys. The pulse soon fell to 96, but the temp. varied only from 102° to 103°, and the urine continued scanty and troublesome. The bowels remained rather loose after the enema for twenty-four hours. On the next morning (6th day) I found the temp. again 104°, sickness frequent, and urine almost suppressed. I removed the patient's night dress and packed each arm in a tepid wet towel, the water with which the towels were kept wet being gradually cooled and then iced. In twelve hours the temp. was 100°, and pulse 84. She had not been once sick since the towels were put on, and the bladder had been free from irritation, and at the end of six hours after the application of the towels the patient herself passed 8 oz. of normal urine. It was acid, sp. gr. 1012, contained no albumen, but abundant epithelial casts.

A blanket was thrown lightly over the towels and they were allowed to dry under it. In five hours the temp. was again 102°, and the bladder very irritable. The blanket was removed and the towels wetted, and in a very short time all irritability of the bladder again ceased, and in twelve hours the temp. was 99·8°, and pulse 80.

The towels were kept wet for twenty-four hours, during which time the temp. only varied $\frac{2}{10}$ths, and the pulse stood at 72.

In the next twenty-four hours, the towels being still wet, the temp. was steady at 99·6°, and 2¼ pints of urine were passed.

On the following day (10th after operation) I removed the sutures and found the wound soundly healed by first intention, and the towels were removed. During the day the urine was passed with increasing frequency, and at 6 p.m. sickness began again, temp. being only 100·4°, pulse 76.

The arms were repacked and sickness and irritability of bladder at once ceased, *temp. and pulse remaining unaffected.*

On the morning of the 11th day the towels were again removed and the bowels cleared by a simple enema. On this day the quantity of urine was 1¼ pints, on the 12th day 1½ pints, and on the 13th day 2 pints. The temp. was now quite normal, and I allowed the patient to be dressed and up on the couch. She had up to this time said nothing as to any previous kidney trouble, but now stated that after her labours she had much trouble with the water, and that it continued as long as she lay in bed, but was better directly she got up. On two occasions there had also been sickness, but she had never been so ill as she had been after the operation.

Remarks.—This case seems to present many features of great interest. Thanks to the observations of my colleague, Mr. Doran, we know how very frequently granular kidneys are present, along with large abdominal tumours, and this in cases in which no albumen has been detected before operation, and no symptom has warned us of the kidney condition.

In the present case I could never detect albumen, even when the kidneys had almost ceased to act, and though their normal secretion was so scanty, they were equal to the secretion of a fair quantity of urine heavily loaded with lithates, on the 2nd day after operation. And on one of the days while the towels were on 3 pints of normal urine were passed.

I am myself unable to offer any explanation of these phenomena, but I trust some of the members of the Society who have devoted special attention to the pathology of the kidneys may be able to do so.

The sickness was evidently due to the imperfect action of the kidneys, but I am at a loss to explain its instant cessation when the towels were applied, unless this gives us the key to the whole case: the action being of the class of counter-irritants, the wet towels acting on the cutaneous nerves of the arms. I know by repeated observation that congestion of the kidneys is apt to follow the removal of large abdominal

tumours, and that it may pass into suppression of urine if the kidneys are not promptly relieved by appropriate treatment. I also know that this congestion may either precede, accompany, or follow high temperature, and that in either case the most speedy relief is afforded by the application of dry cold to the head in the form of the ice-water cap. In a paper read some years back before the Royal Medical and Chirurgical Society I ventured to attribute the rapid action of the ice-water cap in checking commencing congestions of important internal organs to a direct action on the brain as distinguished from a cooling of the general blood temperature. We have evidence that the involved organ is relieved almost at once when the cap is applied, and long before there is any appreciable difference in the temperature. My view then was that the brain and nerve centres were directly cooled; a study of the present case suggests the probability that the action is a sympathetic one, the nerves of the scalp with their accompanying blood-vessels being directly acted on, the brain secondarily, and the affected organ secondarily to the brain, the action being similar to that well-known one in which external chill produces internal congestion and inflammation, and also to the action of counter-irritants. Even granting that this is the correct explanation as to the way in which dry cold applied to the head acts, we are still without an explanation of the rapid effect on the kidneys of the application of wet cold to the arms. Here again, however, it must be noted that it was not the general lowering of temperature which affected the kidneys, for the action was too quick for this explanation, and moreover was equally well marked on the occasions when the temperature and pulse remained unaffected. I trust the discussion on this case may be of some use in attracting fresh attention to the value of dry and wet cold as therapeutic agents. I think their value is hardly so generally known and appreciated as it might be. I have recently seen a pneumonia following amputation of the breast yield rapidly and satisfactorily, to the ice-water cap without any other treatment, either local or general. If such a simple method is found good in a surgical case, why should it not be equally good in general cases?

XXVI.—*Case of Erythema Iris.* By BALMANNO SQUIRE, M.B. *Read Feb.* 10, 1882.

THE case is that of a single woman, æt. 28, having excellent health, who presents an eruption limited to both palms and the palmar aspect of the fingers, except that it extends also but in a less degree over the dorsal aspect of the two last joints of some of the fingers.

This attack of her eruption has lasted now a month, but she has had two previous attacks, namely, one six months ago, which lasted for three weeks, and the other two years ago, which also lasted for three weeks.

The periods referred to (of three weeks) embraced the whole duration of each of the previous attacks, including the complete disappearance of a somewhat marked desquamation which formed the last stage of them.

The present attack, therefore, promises to be much longer than the others, since after a month's duration of it desquamation has not yet begun.*

The eruption itches very much, burns when exposed to the fire, and the skin affected by it is very tender to the touch. This condition of her hands makes her very helpless. For example, she cannot write and cannot brush her hair or dress herself.

As to the character of the previous attacks, she states that they exactly resembled the present one, and that the spots peeled off afterwards like a blister, but that they peeled off drily and that none of the spots nor any parts of them ever assumed during any part of their course the appearance of a blister.

On examining her palms they are found to be somewhat freely sprinkled over with flat unraised spots or stains of a brownish-crimson colour, most of them rounded, some of irregular shape, but all of them rather abruptly limited at their margin, so that on a casual inspection they look not altogether very unlike an eruption of purpura, but on pressing them with the finger the eruption disappears for the moment completely.

There is no scurfiness or scaliness on any of them, and certainly no appearance of a blister or a bleb, nor are they even

* However, within a week after the time of taking these notes the eruption vanished completely.—B. S.

in the least degree perceptibly raised. They have the appearance merely of discoid, rather accentuated, crimson-brown stains, the average diameter of which is three or four millimeters.

On close inspection, however, it becomes obvious that each spot is surrounded by a delicately pink coloured areola which the deeper colour of the spot renders at first sight invisible, and on viewing the skin obliquely it further appears that the pink areola is raised both above the level of the surrounding skin and above the level of the included spot, so as to give the spot a somewhat sunken appearance. The thickness of this faintly pink ring or areola is constant whatever the dimensions of the included spot, being the same around a spot of only a millimeter in diameter that it is around a spot of two centimeters in diameter.

On a still closer inspection of the spots it becomes noticeable that all of them above the diameter of three or four millimeters, which gives seven or eight millimeters for the outside diameter of their surrounding areola, that all of the spots of and over this size have a faded yellow colour at their central part.

This buff-hued discoloration, however, is not sufficiently abrupt at its circumference to make it a definite bull's eye to these otherwise target-like spots, but merges in a vague and shadowy manner into the surrounding brown crimson. Still this central yellow portion is obvious enough when the patch is closely examined, and in the larger patches (those, for example, of a centimeter across) it forms the greater part of the area of each patch.

At different parts of the affected surface all of the different stages of the disease may be observed excepting the one (related by the patient) of final desquamation.

Thus, on the backs of the final joints of the fingers where the eruption is newest may be observed the initial stage of a delicately pink coloured tubercle about two millimeters in diameter, in other places may be seen pink raised discs four millimeters in diameter with a dark coloured depressed point in the middle, the whole arrangement looking remarkably like a flea-bite, and so on until we come to the largest spots, which are situated on the palmar aspect of the fingers.

The two largest of all, which are of irregular shape, measure two centimeters long by one centimeter across at their greatest diameter. These were probably formed by the agglomeration of smaller patches.

I have merely to add that with the exception of one spot on the flexure of one of the wrists the eruption is absolutely limited to the hands, that it is somewhat more developed on the right hand than it is on the left one, and that in each of the hands it is on the whole somewhat notably more copious on the part of the hand supplied by the median nerve than it is on the part supplied by the ulnar nerve.

XXVII.—*Case of Aneurism of the Ascending Aorta.* By David W. Finlay, M.D. *Read Feb.* 10, 1882.

ELIZABETH LLOYD, æt. 32, a married woman without children, is at present under my care in the out-patient department of the Middlesex Hospital.

The following is a note of her present condition:—She is a fair-complexioned, tolerably well-nourished woman, under the middle size, complaining of little else than shortness of breath on exertion, and a slight cough at times. Temperature is normal; the pulse numbers 80 in the minute, and is collapsing in character, stronger in the right than in the left radial artery. She has no difficulty in swallowing, and the pupils are equal.

A pulsating swelling of a somewhat oval shape, 3 inches long by 2½ broad, and projecting about ½ an inch above the surface of the chest, appears to the right side of the sternum, its long axis being nearly vertical. It extends from the lower border of the second to the lower border of the fourth rib, the point of maximum pulsation being on the level of the third cartilage and interspace, 1½ inch to the right of the mid-sternal line. The pulsation feels quite superficial over a space the size of a penny, the cartilage of the third rib being apparently eroded. There is no enlargement of cutaneous veins, nor discoloration of the skin.

Over the swelling there is a thrill and a loud double murmur, the diastolic part being loudest and longest. A double murmur is also heard at the apex, which appears in the fifth interspace in the nipple line, 3¼ inches from the mid-sternal line. The murmurs are heard generally all over the chest, both back and front, in varying intensity, being well

heard in the left scapular region, and faintly even to the bases of both lungs. The pulsation in the tumour follows the apex impulse, and precedes by a well-marked interval the radial pulse. There is a visible pulsation of the vessels at the root of the neck, and the double murmur is heard in both carotids.

There is dulness on percussion over the tumour, well marked up to the limits of obvious pulsation, and shaded off for some distance beyond, being appreciable even to the clavicle on the right side. The breath sounds are normal, except at the left apex in front, where the inspiration is wavy, and over the right upper scapular region behind, where expiration is prolonged. The appearance and action of the vocal cords are normal.

The patient's history is as follows:—Both her parents are alive and enjoy good health. She herself is the eldest of a family of thirteen, the youngest, who survives, being also a girl. The rest were all boys, and all died in infancy of measles, scarlet fever, and bronchitis, except one, who died at the age of 18 from the effects of an accident. The mother is stated to have had one or more miscarriages, but not before the birth of the patient. With this doubtful exception there is no history of any specific taint. Patient was married at the age of 21; her husband is healthy, and she has had no miscarriage. She never had any severe illness till the age of 20, when she was laid up for three months with rheumatic fever. Since then she has never felt quite so strong. She has not been accustomed to severe manual labour, but thinks she strained herself about four years and a half ago while standing on a ladder and stretching her arm to clean some paint work. She had to leave off work for the time on account of pain in the chest and down the right arm. About a year later she began to suffer from a continuous aching pain on the right side of the sternum, with shortness of breath, and on examining the part she discovered pulsation and swelling there. She then sought admission to the Middlesex Hospital, where she remained from January 22 to July 7, 1879, under the care of Dr. Cayley, to whom I am indebted for permission to make use of the notes then taken of the progress of her case.

When admitted to the hospital she complained of much pain in the tumour of a constant, dull, aching kind, with occasional attacks of lancinating pain commencing in the tumour, and passing round by the right axilla to the back,

and down the arm to the elbow. She also suffered considerably from dyspnœa, especially on turning over on either side in bed. The urine had a specific gravity of 1016, and was acid and free from albumen. Her temperature was 98·4°, and her pulse 76.

She was at once put upon iodide of potassium in doses of 5 grains three times a day, gradually increased, till by February 12 she was taking 12 grain doses.

On February 21 she had some watering of the eyes and a disagreeable taste in the mouth, and then the medicine was omitted. These symptoms passed off in a day or two, and on the 24th she resumed the medicine, commencing with 5 grain doses as before.

These were increased to 10 grains on May 15, 15 grains on June 11, 20 grains on June 14, 25 grains on June 19, and 30 grains on June 27.

Besides this she was dieted on the plan advocated by Mr. Tuffnell as follows:

Breakfast—Bread ℥ij with butter, milk ℥ij.
Dinner—Meat ℥ij, potatoes ℥iij, water ℥iv.
Supper—Bread ℥ij, milk ℥ij.
Total solids ℥x, fluids ℥viij.

On this scale she was kept during the whole period of her stay in the hospital. She was also confined strictly to the recumbent position.

As to the effect of treatment, the pain ceased to trouble her after six days, returning, however, in a less degree occasionally, but not lasting long. On February 3 it was noted that "the pulsation was not so apparent in the tumour."

On March 14 the note states that there is still "less pulsation;" on April 4 that there is "less pulsation, but no evidence of consolidation;" on April 26 that "the patient feels less palpitation, and there appears to be less to the eye; and on placing the hand over the tumour the pulsation does not feel so superficial as formerly." Nothing worthy of note is recorded after this, and she was discharged on July 7, feeling much relieved, but without any further change in her physical condition.

The urine was scanty and of high specific gravity all through, as might be expected, the average quantity being about 10½ oz. daily. Her temperature continued normal and the pulse ranged between 60 and 80. She bore the restraints of the treatment exceedingly well, having on three occasions only complained of thirst, and never of hunger.

She continued her restricted diet and the recumbent position for six weeks after she went home; and she still continues to exercise great care both as to diet and movement. She has also since her discharge attended continuously as an outpatient, and has had iodide of potassium almost all the time in doses varying from 10 to 30 grains three times a day.

Right radial.

Left radial.

Remarks.—Comparing her condition on physical examination when in the hospital with what it is now, these differences appear:—

1. The diastolic sound over the tumour was then accompanied by a "thud," indicating, I presume, the competent closure of the aortic valves: this is not perceptible now.

2. The situation of the heart's apex beat was normal then: it is somewhat outside its normal position now.

3. There were no murmurs at the heart's apex then: there is a double murmur now.

4. The pulsation in the tumour feels decidedly more superficial now than it did then, owing no doubt to the erosion of the costal cartilage.

From the whole course of the case the sequence of events seems to be the following:—

First the weakening of part of the wall of the aorta in connection with the antecedent attack of rheumatic fever, its giving way under the strain referred to in the history, and

the establishment of the aneurism. Then the gradual progress of the aneurism, leading to incompetence of the aortic valve, and this in turn to dilatation and hypertrophy of the left ventricle with mitral incompetence. The patient states that she feels much better now than when she left the hospital two and a half years ago, and so far as her general condition is concerned she is almost well. But there can be no doubt that she has been slowly losing ground, and the question which demands consideration now is whether it would be proper to recommend a resort to operative procedure, and if so what that procedure should be. It may be thought by some that the case presents not a bad record of result up to the present time; and the advocates of restricted diet with recumbency, and of iodide of potassium respectively, might perhaps claim it as illustrating the advantages of their several methods. But still it is a case of amelioration only, not of cure.

It is, therefore, with the view of having the question of further treatment discussed that I bring forward the case.

Two possible methods occur to one—galvano-puncture and the distal ligature. Regarding the former, no case has been recorded in the 'Transactions of the Society,' and I should be glad to hear some expression of opinion as to its usefulness from any member who has had experience of it. If, as appears to be held by some, it is only of use to avert the tendency to instant death when the aneurism is about to burst externally, we may dismiss its consideration here; for the patient is not unlikely to live for a considerable time in fair comfort as she is.

As to the distal ligature, cases have been reported by Dr. Cockle and Mr. Heath, Mr. Holmes, and Mr. Barwell, in which notable benefit followed this method of treatment.*

It seems to me that there are points in the present case both in favour of and against any operative interference. In the former category I would place the youth, good general health, and, but for the aneurism, apparently sound condition of her arterial system generally; as also the circumscribed appearance of the aneurism and the absence of pressure signs. On the other hand, there is the nearness of the aneurism to the aortic orifice, and the aortic regurgitation, which would expose to the risk of portions of clot being washed back into

* Dr. Cockle's and Mr. Heath's case is reported in vol. v of the Society's 'Transactions,' p. 183, with a further report in vol. vi, p. 127, and the sequel in vol. x, p. 96; Mr. Holmes's in vol. ix, p. 114, and vol. x, p. 97; and Mr. Barwell's in his lately published monograph on Aneurism.

the left ventricle, together with a probably greater risk than in cases where the valve is competent of clots being detached and carried forward in the other direction. At the same time, judging from the slight amount of dilatation and hypertrophy, the regurgitation may be small in quantity; and it must be remembered that the drawbacks just mentioned are of most importance with regard to galvano-puncture.

On the whole, the arguments on either side seem so equal that it becomes a matter of much difficulty to strike a balance in favour of one or the other.

Report of Committee upon Dr. Finlay's Case of Aneurism of the Ascending Aorta.

Having carefully examined the case of aortic aneurism referred to us, we agree with the opinion of the author respecting its nature, as being that of a sacculated aneurism of the ascending aorta, attended with some regurgitation through the aortic valve.

R. Douglas Powell.
T. Henry Green.

Feb. 24, 1882.

XXVIII.— *Case in which a piece of Grass swallowed by a Child made its exit through an Intercostal Space.* By R. J. Godlee, M.S. *Read Feb.* 24, 1882.

THE following case occurred in the practice of Dr. Rudyard, of Watford, on whose behalf I have the pleasure of bringing it before the Society.

The patient was a child two years of age, who came under Dr. Rudyard's care, on Oct. 10, 1881, on account of a spasmodic cough, which was supposed by the mother to be whooping cough. There was, however, no characteristic whoop, nor were any of the physical signs of bronchitis apparent. It was accordingly treated as a case of ordinary catarrh, though the amount of spasm did not seem well accounted for; and after twelve days it had so far recovered that attendance was discontinued. At the last visit the mother called attention to a small red spot between the sixth and seventh ribs in the

back. The spot was smaller in circumference than a threepenny-bit, and was thought by Dr. Rudyard to be the result of some mechanical injury, as, *e.g.* the pressure of a button on the mother's dress during nursing. He anticipated that suppuration would occur, and accordingly ordered poultices to the part and thought no more about it. Three weeks later, however, the child was brought back, and the mother explained that she had continued the application of the poultices during the period; but the abscess had only burst on the morning of this visit. She also said, that on putting the finger to the part, she felt something hard projecting, which she thought must be a piece of grass, which the child had swallowed ten days before it was first seen, *i.e.* forty-three days previously, and about which no mention had been made.

Dr. Rudyard says he was disposed at first to ridicule the idea, and thinking that the projecting substance was merely the "core" of the boil, proposed to extract it with a pair of forceps, for the sake of convincing the mother, when he was astonished to find that it was the stalk end of the full head of rye-grass, which is now shown. The wound healed without difficulty and the child has made a complete recovery.

It seems that the mother saw the child with the piece of grass in its mouth and that before she could take it out it disappeared. She gave three doses of castor oil, and thinking that in all probability the grass had passed per anum, dismissed it from her mind, and perhaps, naturally, did not think of any connection between the occurrence and the spasmodic cough. The exact place at which it emerged was between the sixth and seventh ribs, about three inches from the spine on the left side. This would be very little, if at all, below the level of the body of the sixth dorsal vertebra, and we do not therefore obtain from the position of emergence any very clear guide as to whether the grass entered the trachea or the œsophagus, as it will be observed that the point is below the level of the bifurcation of the trachea and above that of the end of the œsophagus. I am rather disposed to suspect that it stuck for some reason in the œsophagus, a little above its termination, as it appears difficult to reconcile the passage of such a rough body through the larynx without exciting very serious symptoms, or into the bronchus without setting up pneumonia. That foreign bodies may enter the bronchus, without setting up much pulmonary mischief, was pointed out by Dr. Wilks, in reporting a somewhat similar case to the Pathological Society at a late meeting; there the ear of corn escaped from an abscess in the

left suprascapular region; and cases of the same kind were mentioned by the speakers who followed. It is interesting in Dr. Rudyard's case to be able to settle definitely the time occupied by the grass in making its escape as forty-three days in all.

By the kindness of Mr. R. W. Parker I am enabled to add the following brief notes of a somewhat similar case, which was exhibited by Mr. H. S. Carpenter at one of the branch meetings of the British Medical Association.

On September 1, 1879, a boy had been amusing himself by putting ears of grass into his mouth, when one of them slipped down. Five or six days afterwards he complained of pain in the left side, and was unable to raise his left arm to the horizontal position. The pains were at first thought to be rheumatic, but after a time a swelling became apparent, to which it was directed that poultices should be applied. This was done, and on September 14 the stem end of the ear of grass was seen protruding through an abscess which formed at the seat of the swelling, and was extracted by the mother the same day. The abscess was between the ninth and tenth ribs near the angles. There was no constitutional disturbance. The ear of grass had, when extracted, a distinctly fæcal odour, and had thus undoubtedly made its way through some part of intestinal tract, probably some part of the colon.

Cases of this nature are not exceedingly uncommon, and are analogous to those of another class in which needles and other sharp substances introduced beneath the skin not only rapidly disappear beyond the reach of the surgeon, but actually travel for a greater or smaller distance through the tissues of the body. As an example of the manner in which needles may travel, I may mention one that I met with some years ago in the dissecting room of University College. In the abdomen of an old female subject were found a large quantity of needles, much blackened and corroded, that were making their way through various parts of the walls of the stomach and intestines, some sticking half-way through, others fixed in the omentum, and so forth, but none showing signs of having excited anything more than very insignificant local inflammation.

XXIX.—*A Case of Sudden Perforative Pneumothorax, with rapid and complete Recovery.* By GEORGE JOHNSON, M.D. *Read February* 24, 1882.

ON the 15th November, 1881, I saw at Woolwich, in consultation with Surgeon-Major Godwin, Master H. A., æt. 17, whose history was as follows:—He had been at school at Gosport, working hard and successfully and in good health.

On the 2nd November he ran about twenty miles in a paper-chase, when he was so much fatigued that he dropped on the ground. He, however, quickly recovered, and during the two following days he was in his usual good health, doing his school work and exercising himself in the gymnasium. On the third day after the paper-chase, November 5, soon after his midday dinner, and immediately after running up stairs, he was suddenly seized with severe pain in the left side of the chest, urgent dyspnœa, and extreme prostration. Mr. H. S. Wharton, of Gosport, who was immediately sent for, found the boy lying on his back gasping for breath, and, as he says in a note with which he has favoured me, "Knowing him to be an emotional lad who was likely to faint from very slight causes, I thought a distended stomach was at the bottom of his troubles. I ordered him to bed, and on my next visit put my ear to his chest in a casual way, not dreaming that there was anything amiss there, as he had no pain or cough leading me to suspect thoracic mischief, when to my surprise I could hear no respiratory murmur on the left side, but in its place the most positive evidence that the pleura was distended with air, there being amphoric resonance over the whole left side and the heart displaced to the right." The diagnosis was confirmed by Dr. Miller, of Southsea, who saw the patient in consultation with Mr. Wharton.

About four or five hours after the onset of the attack the pain and dyspnœa, which had been urgent, entirely passed away, and so long as he remained at rest did not return.

After a few days' rest in bed his father took the patient to his house at Woolwich, on the 14th November, where, on the following day, I saw him with Dr. Godwin. He was in bed, but declared that he was quite well, and wished to know when he might go back to his school work. He had a slight short and dry cough, but no pain or dyspnœa. Pulse 60; respi-

ration 24; temperature 97.° The physical signs of perforative pneumothorax were unequivocal. Over the whole left side, which was comparatively motionless, there was hyper-resonance on percussion, except in the interscapular region, where, in the probable position of the collapsed lung, the resonance was rather less than at the corresponding point on the right side; over the same limited space there was a feeble and, as it were, a distant sound of respiration. Elsewhere over the whole left side, the normal respiratory murmur was replaced by loud amphoric blowing and an occasional crepitating echo ("metallic tinkling"). There was amphoric echo of the cough and voice. There was no evidence of liquid in the pleura; no dulness at the base; no splashing sound on succussion. The heart was felt and heard beating in the epigastrium, and to the right of the sternum.

As there were no symptoms requiring treatment it was agreed to keep him in bed on simple diet without medicine of any kind.

On the 27th Nov. Dr. Godwin was good enough to write to me, and his report indicated considerable improvement, the main points being "increase of movement on the left side, absence of amphoric blowing and metallic tinkling, distinct respiratory murmur down the left side of the spine; the heart's impulse felt to the left of the sternum; general health excellent in all respects."

Again, on the 23rd Dec. Dr. Godwin reported the result of a conjoint examination made three days before by his colleague, Dr. Stevenson, and himself, to this effect:—"Vesicular murmur is now plainly audible over the whole left chest; it is weaker over the lower lobe than the upper, but yet quite distinct; the heart is well over to the left side. His general health excellent. About a fortnight ago he had a return of pain similar to that which caused him such agony when he was first attacked, but much less intense. On examination at that time I found that the heart had made a decided move towards its natural position. The pain lasted only a few hours. He has now gone off to Brighton with his parents."

On the 11th Jan., 1882, his parents brought him to me. He then had no cough or other sign of illness, and the only noticeable difference on a careful comparison of the two sides of the chest was a somewhat doubtful flattening, with diminished inspiratory movement, in the left subclavian region. The respiratory and vocal phenomena were everywhere quite

normal. He has since returned to school, and his first medical attendant there, Mr. Wharton, writes to me:—"As far as I can determine he is perfectly cured of his pneumothorax."

The question arises what was the cause of the breach in the texture of the pleura which resulted in the pneumothorax?

His parents reminded me that I had once before been consulted about him, and on referring to my case-book I found that on the 19th May, 1879, when he was 15 years of age, he was brought to me on account of a cough which I attributed to enlargement of the tonsils. I made no note of the condition of the chest, but I have no doubt that I examined it with a negative result.

A younger brother has lately died after a long illness from scrofulous disease of the hip and vertebræ. I think it probable that at some former period there had been a slight structural change at the apex of the left lung, resulting, as so commonly happens, in the formation of local adhesions between the pulmonary and costal pleuræ, and that, as a result of the violent exertion which he had recently undergone, these old adhesions became stretched and partially ruptured, so as ultimately to cause a rent in the texture of the pleura with consequent pneumothorax. Then, as there was no purulent or other morbid secretion which, by escaping into the cavity of the pleura, would excite inflammation and empyema, the ruptured pleura was soon repaired, the escaped air was gradually absorbed, the lung again expanded, and the heart resumed its normal position.

Perforative pneumothorax being usually associated with phthisis is almost invariably fatal. I have seen a considerable number of cases of phthisical pneumothorax, but this is the first case of recovery that has come under my observation. I am indebted to Dr. Stephen Mackenzie for a reference to a case of recovery published by himself (*Lancet*, August 19, 1871, p. 259). The patient was a man, æt. 50, who had for many years suffered from cough and shortness of breath. The pneumothorax, which occurred suddenly, was supposed to have resulted from the rupture of an emphysematous air vesicle. The air was pumped out of the chest by an aspirator. The symptoms and physical signs passed away, and the patient left the hospital in three weeks feeling better than he had been for months. Dr. Mackenzie also referred me to a short paper by Dr. Wilks (*Brit. Med. Journal*, Feb. 2, 1874, p. 770),

in which three cases of recovery from simple pneumothorax are briefly recorded.

Two of the cases occurred in Guy's Hospital, one being a young man the other an elderly man, under the care of the late Dr. Hughes, who suggested that the pneumothorax had resulted from rupture of a "bullous portion of an emphysematous lung." Both patients made a complete recovery. The third case was that of a lady, æt. 30, who in the eighth month of her pregnancy, after a slight cold, had acute perforative pneumothorax. The symptoms gradually subsided, she was soon delivered of a healthy child, and her recovery was complete. In none of these three cases was any operative procedure resorted to.

XXX.—*Sequel to a Case of Eyeball-tension reported in Vol. XIV of the Society's Transactions.* By W. Spencer Watson. *Read February* 24, 1882.

I OPERATED on Mrs. B.'s (a dressmaker, æt. 46) right eye by sclerotomy in April, 1876, and in October, 1880, reported to the Society that the sight had progressively improved ever since the operation, and that the eye remained free from tension, but that the left eye manifested symptoms of the early stage of the same disease; these symptoms being (1) the subjective sensation of coloured rings round the flame of the candle, (2) slightly increased tension, and (3) diminished acuteness of vision; but that the persistent use of eserine in the form of eye-drops kept the symptoms within endurable limits, and that the patient preferred to have no operation done though I had urged it on her as desirable. The left eye remained tolerably quiet till June, 1881, when the patient had an attack of severe facial neuralgia on the left side. The appearances of the coloured haloes now became more frequent, intermittent obscurations also not hitherto noticed often occurred, and the use of eserine caused much conjunctival and palpebral irritation, and had no effect in reducing tension. The latter became more pronounced and constant, the aqueous humour became turbid, and the aspect of the eye altogether more threatening.

I therefore again urged the necessity of an operation, and on June 27, 1881, performed sclerotomy upwards in this eye also. A slight difficulty occurred in the operation. After making the usual puncture and counter-puncture, and even after completing the sclerotic section, there was no escape of aqueous humour and the tension remained as high as ever. This must have been due to some entanglement of the marginal fibres of the iris in the wound on the withdrawal of the knife. I therefore made a second, rather freer section, and after passing the knife into the anterior chamber turned the blade on its axis in order that the wound might be made to gape. This manœuvre had the desired effect. A certain quantity of aqueous humour escaped, and the tension was at once relieved. On the second day the tension remained normal, the pupil being but slightly up-drawn. The chromopsiæ and all the other symptoms of intraocular tension had quite disappeared and sight had much improved. Eserine drops were again used after the operation.

On July 21 the sight was S.$=\frac{12}{LXX}$, and V. J. 16 with the left eye. With the right eye S.$=\frac{12}{XXX}$, V. J. 12.

In other words, the left eye has about $\frac{1}{6}$ of the normal acuteness of sight, and the right about $\frac{1}{2}$.

In the left eye the optic disc still presents a slight excavation, but no pulsation of the vessels of the retina. The cicatrix left by the operation is cystoid and prominent in the centre, but much less so than that in the right eye.

Jan., 1882.—The right eye remains good though the pupil appears small and displaced upwards, and though the vitreous is in part occupied by opaque membrane.

The left eye sees J. 16 imperfectly, the tension is normal, and there has been no pain. There are, however, still occasional chromopsiæ. The pupil is large and evenly dilated. The optic disc is excavated and the vessels tortuous, but otherwise normal in appearance. Mrs. B. reads and does needlework with the aid of her spectacles. Her palmar fascia in both hands shows a disposition to Dupuytren's contraction and the skin is longitudinally marked by fissures.

Remarks.—I would first call attention to the continued usefulness of the eye operated on now nearly six years ago, thus giving us further evidence of the efficiency of the operation of sclerotomy, an operation which, as an alternative of iridectomy, may still be said to be on its trial. The improvement of the condition of the left eye operated on more recently was not so marked. The greater length of time

during which the optic nerve and retina had been exposed to pressure, and the increased age of the patient, will perhaps together account for the lack of improvement in vision. When examining the two eyes one against the other, one is struck by the contrast externally and ophthalmoscopically. The better eye for seeing is by far the worst looking. The pupil is displaced and misshapen, and the vitreous is occupied at its lower part by opacities, and yet vision is not only better than that of the left eye, but even seems to be progressively improving. The left eye, on the other hand, has a nearly circular pupil, and there are no opacities in the vitreous, and yet sight is very limited as compared with the fellow-eye. Possibly in time it too may improve.

The advantage of a long-continued course of eserine drops was well illustrated by this case. Before the operation the use of the drops seemed again and again to reduce tension and arrest the progress of the disease. The case, however, shows that this drug is only a palliative, and may be employed by way of temporising when from any cause the operation must be postponed. Eserine drops cannot be relied on as a substitute for either sclerotomy or iridectomy. Probably in my case a better result might have been obtained if less reliance had been placed on the eserine and the operation had been performed sooner.

The contracted condition of the palmar fascia is so slightly pronounced that it would not have been noticed by most persons. I have, however, recently seen one other case of eyeball tension, associated with more decided Dupuytren's contraction, and as it has also been noticed by Mr. Hutchinson in the same condition, I think it worth while to mention the condition as probably existing in this case.

Should it prove that such an association of the two conditions, viz. eyeball-tension and Dupuytren's contraction, is a common occurrence, it will, I think, go far towards elucidating the pathology of eyeball-tension, and would indicate that it was dependent upon an atrophic contraction of the sclerotic of the same kind as that observed in the palmar fascia in Dupuytren's contraction.

XXXI.—*Chimney-Sweeps' Cancer in the Axilla: Removal of the Growth: Ligature of the Axillary Artery and Amputation of the Arm at the Shoulder-joint, so as to bring the flap of skin over the shoulder on to the chest.* By George Lawson. *Read March* 10, 1882.

JOHN S., æt. 61, a chimney-sweep, was admitted into the Middlesex Hospital on November 8, 1881, suffering from an epithelioma in the axilla which evidently was primarily induced by the irritation of soot.

Previous history.—The patient states that in 1860 he first noticed what is called by sweeps a "soot-wart" in his right axilla, and this he frequently picked off, but it always reappeared. For nearly fourteen years it gave him comparatively little trouble, but at about the end of this period it seemed to change its character, and in 1875, fifteen years after the first appearance of the wart, he was admitted into the Birmingham Hospital under Mr. Pemberton with a large epithelioma of the axilla. This was excised and the patient made a good recovery. In twelve months the disease began to recur, and in November, 1880, it was excised by Dr. Milner Moore in the Coventry Hospital. The man did well, but, after a few months' respite, the disease again returned, and in November, 1881, he came under my care in the Middlesex Hospital.

State on admission.—In the right axilla there is a wound about 2 inches long extending from the posterior border of the axilla to the edge of the pectoralis major muscle. It has hard, ragged everted edges; the surrounding tissues are very indurated, and from this wound there is a thin, sanious fœtid discharge. Extending from the anterior extremity of the wound and in the skin over the pectoral muscle is a cicatrix, about an inch long, a portion of the cicatrix produced by one of the previous operations. Through the wound a probe can be passed for about two inches in every direction. There is evidently a large epithelial ulcer beneath the pectoralis major muscle, which is tightly contracted over it. No enlargement of the glands can be detected either in the axilla, below the clavicle, or in the neck. The patient was anxious for an operation, but as it was clear that owing to the contraction of the pectoral over the ulcer the mere excision of the growth would not prove satisfactory, I suggested that the patient should give

me discretionary power to amputate at the shoulder-joint if in the course of the operation I thought it advisable. To this the man assented.

Nov. 23.—The patient having been placed under ether, I passed a knife into the wound and divided the pectoralis major, which was contracted over it. A large epitheliomatous ulcer about 2½ inches in diameter was then seen. This I dissected away, but as the disease had encroached upon the axillary artery close to the edge of the axilla, I felt that if I stopped here, the operation would be useless and the disease

would speedily again recur. The wound caused by the division of the pectoral muscle and its consequent retraction was also very large and skin was required to cover it. I therefore tied the axillary artery just as it passes beneath the lower edge of the lesser pectoral muscle, and where the artery and adjacent tissues were healthy, and then amputated the arm at the shoulder-joint. In making the amputation I cut one large antero-posterior flap, which extended in width from a line with the coracoid process to the back of the joint, and in length as low as the insertion of the deltoid. The capsule of the joint

being exposed I divided it, and passing the knife through the joint, cut abruptly downwards through the undivided tissues below the joint.

A large flap of skin and muscles was thus formed, which I brought down upon the chest and secured with sutures. The axillary artery having been previously tied, very little blood was lost during the operation. The wound was dressed with an ointment of iodoform 5 grains to one ounce of vaseline spread on lint, and the whole shoulder covered with a large square of cotton wool which was kept *in situ* with a bandage.

Nov. 24.—The patient had 15 minims of Liquor Opii shortly after the operation, which was repeated during the night. He was very restless owing to the pain in the wound. Tongue dry; pulse 122, temperature 100·2°.

Nov. 25.—Patient free from pain. Had some hours' sleep during the night; pulse 120, temperature 99·4°. In the evening, temperature 101·6°

Nov. 26.—Doing well. Had a good night; makes no complaint; temperature 100°. Evening temperature 101·6°.

Nov. 27.—Continues to progress favorably; temperature 99°. Evening temperature 100·2°.

Nov. 28.—Temperature 98·2°. The skin has united over the greater part of the wound.

The patient continued to do well until Dec. 19, when he had a slight rigor; pulse 130, temperature 103°. The ligature on the axillary artery not yet separated.

Dec. 20.—The ligature from the axillary artery came away this morning. From this date the patient progressed favorably.

Feb. 21.—The wound is united except a small sinus which runs up towards the scapula. In other respects the patient seems quite well.

Remarks.—The epithelioma in this patient corresponds exactly to the description of chimney-sweeps' cancer first given by Percival Pott in 1783, and the man in his account of the origin of the sore in his axilla, when he said that he first noticed what is called by sweeps a "soot-wart," used the same technical expression as Pott did in his description of the disease.

The locality in which the disease occurs, according to Pott, is the scrotum, but it has since been shown that it may grow from any part of the skin which has been subjected to the irritation of soot. Earle mentions the case of a gardener who had a chimney-sweeps' cancer on the wrist; and Sir Astley Cooper relates two cases, and Keate one, of chimney-sweeps'

cancer on the face. The progress of the disease in this patient was unusually slow. It is now seven years since the soot-wart apparently assumed an epitheliomatous character, and yet the lymphatic glands in the neighbourhood of the disease have not yet been perceptibly affected.

In the performance of this operation I first excised the epitheliomatous growth, but when I found that the disease had encroached upon the axillary artery near the lower border of the axilla, I decided to tie the artery where the tissues were healthy, and this I did just as the artery escapes from beneath the pectoralis minor muscle. I hoped that by doing this I should cut off a great portion of the blood-supply from the locality in which the epithelioma grew, and also avoid a loss of blood in the amputation of the arm at the shoulder-joint.

My reasons for amputating at the shoulder-joint were first to obtain sufficient skin to cover the wound caused by the excision of the growth and the division of the pectoralis major muscle, and next to prevent the formation of a free collateral supply of blood to the region from which the epithelioma had been removed.

XXXII.—*Aneurism of the Third Part of the Left Axillary Artery: Ligature of the Subclavian: Rupture of the Sac on the 17th Day: Amputation at the Shoulder-joint: Recovery.* By Howard Marsh. *Read March* 10, 1882.

SAMUEL D., æt. 32, a carman, came into St. Bartholomew's Hospital, under my care, on March 18, 1880.

He said he had never had syphilis, and was always healthy until his present illness. His work was rough, and he often carried heavy weights.

Eight weeks before his admission he found a small swelling, about the size of a chestnut, in his left armpit. Two weeks later—that is, six weeks before his admission—this increased considerably and grew painful, and he noticed that it pulsated. In the ten days preceding his admission the tumour had rapidly enlarged, and the whole hand and arm had become œdematous.

When first seen, the patient—who had walked four miles to the hospital—was pale and exhausted, and his countenance was distressed and anxious. The whole left upper extremity, which he supported with the opposite hand, was enlarged to nearly twice its natural size by general œdema extending from the shoulder to the fingers. Occupying the lower and outer part of the axilla, and spreading four inches down the arm below the fold of the pectoralis major, was a large, ill-defined swelling, firm and resisting in some portions, soft and elastic in others, and covered on its inner aspect, where it was very prominent, by thin, tense, and dusky skin. The circumference of the arm, taken over the most salient part of the tumour, was 19¾ in. The swelling had a strong expansile pulsation, which, on the surface towards the axilla, conveyed the sensation of being close beneath the skin, but which grew more distant as it was followed to the outer aspect of the arm. There was a loud bruit, and a well-marked thrill was felt in the swelling. Pressure on the third part of the subclavian completely arrested pulsation in, and produced considerable reduction in the size of, the tumour. No radial pulse could be felt at the wrist, perhaps on account of the great œdema of the limb. The heart sounds were normal.

In consultation, as he had been in severe pain and unable to take food for the previous two days, and was now, after walking to the hospital, almost in a fainting condition, and as much of the œdema of the arm would subside under rest and posture, it was agreed to delay operative interference for a day or two.

March 22 (five days later).—He had taken food and slept after morphia. Œdema much diminished.

The aneurism had, however, slightly increased in size, and on its axillary side was more prominent.

A ligature was, therefore, placed on the third part of the subclavian. The carbolic spray was used, and the vessel was tied with thick silk, soaked for some hours in carbolic oil. The ends of the ligature were cut short. A small drainage tube was inserted, and the wound was dressed with carbolic gauze. Pulsation in the tumour ceased when the ligature was tightened.

March 29.—The patient was doing well. There was no return of pulsation in the aneurism. The subclavian wound was nearly healed.

April 5.—The aneurism was increasing slightly. The skin on the inner side was ruddy and brawny, as if suppuration of

the sac was about to occur. Where the swelling was most prominent the skin was growing very thin, and slight oozing of blood-stained serum was taking place. At the inner and posterior part of the arm, where the structures were most dependent, there was a large amount of brawny œdema; the integuments were dusky, and there was a sensation of deep-seated diffused fluctuation, as if a large quantity of fluid blood was gravitating towards the surface in this situation.

On 6th he complained of severe pain in the aneurism, and at 5 A.M. on 7th, hæmorrhage to the amount of about a pint occurred from a small opening on the prominent inner aspect of the swelling. The blood was dark, and mixed with broken down clot, and had evidently been long stagnant in the sac.

On 9th, at 1 P.M., hæmorrhage to about three-quarters of a pint of bright arterial blood suddenly occurred, and it was determined at once to open the sac and endeavour to tie whichever proved to be the bleeding end of the axillary artery; or failing this, to amputate at the shoulder-joint. When the patient was under ether the orifice was enlarged, and two fingers were introduced into the sac. As, however, a gush of arterial blood immediately occurred, and as owing to the establishment of the collateral circulation the entrance of blood into the sac could not be prevented, and further, as the patient was already very exhausted, the safer course seemed to be to remove the limb. The opening was therefore plugged and amputation was performed. Though for some hours in a critical condition the patient soon rallied, and on 25th he was convalescent, and the amputation wound was nearly healed. The subclavian incision, which had continued to discharge two or three drops of thin serum daily till 19th, when it had entirely closed, re-opened slightly on 26th. Mr. Buller (the house surgeon) drew out a minute fragment of silk which he found protruding. At this date there could be felt close to and just beneath the wound, a small cord-like induration, which apparently marked the position of the ligature.

Remarks.—In many of its features—its short duration of only eight weeks; the rapid increase of the swelling and the great size it had attained; its pressure effects both on the brachial plexus, causing severe pain and spoiling the patient's sleep and appetite; and on the venous circulation, leading to tense œdema of the whole limb; and the condition of the aneurism, in respect to the thinness of the sac, its tendency

to point, suggestive of impending rupture; and its widely diffused pulsation, indicating that it was filled mainly by fluid blood, with probably scarcely any laminated fibrine, this case afforded a very characteristic illustration of the formidable nature of aneurism of the axillary artery. It also brought out the difficulty of determining the line that should be adopted in the treatment of this affection. The choice seemed to lie between ligature of the subclavian and laying open the sac and tying the artery above and below; for amputation at the shoulder-joint and compression of the subclaviain might be set aside. The one because it was an unnecessarily severe proceeding to adopt as a first resource, the other because, although it has sometimes succeeded—in cases, however, I presume, of aneurisms of moderate size—in the present instance the great probability was that it would prove inadequate, and also because the patient, already in severe pain and much exhausted, would not it appeared evident be able to bear the treatment for the two or three days over which it might reasonably be expected to extend.

Between laying the sac open and tying the artery above and below, and ligature of the subclavian, it was felt that although the former is, at first sight, the more sure method of curing the aneurism, it must be borne in mind that it may fail because the artery, diseased in the neighbourhood of the sac, gives way where it is tied. Moreover, this operation, always of an extremely formidable description, would, in the present instance, I believe, have certainly proved fatal by shock or exhaustion. While as to ligature of the subclavian, as the artery was easily accessible, the operation would be short, and unattended with either loss of blood, or any circumstance that would necessarily tell unfavorably on the general condition of the patient. And further, it is the proceeding which has most frequently succeeded.

The immediate result was satisfactory: pulsation in the sac was arrested and never returned; œdema of the limb to a great extent subsided, severe pain, previously experienced, almost entirely ceased, and the patient's general condition was very much improved. The subsequent slow yet steady increase in the size of the aneurism was no doubt due to the entrance of blood by the collateral circulation. Its rupture was the result of inflammation in the sac, the occurrence of which was indicated by pain and tenderness about the swelling, and brawny condition of the integuments.

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It may, I think, fairly be asked whether—when the increasing size of the swelling, and its tendency to point showed that rupture of the sac would probably soon occur—the proper course was not to lay the tumour open and ligature the vessel above and below if hæmorrhage was found to be taking place. This would doubtless be sound practice under favorable circumstances, but in the present instance, though the patient had gained considerable strength, he was, I was afraid, still too weak to bear the strain which the operation—even in its simplest form—would involve. While should it prove that a prolonged search was required to arrest hæmorrhage, it was in the highest degree probable that he would not survive.

A point of interest in the case refers to the form of ligature used for tying the subclavian, namely, carbolised silk, the ends of which were cut short. I believe the loop, after cutting its way through the artery, travelled towards the surface and lay close beneath the skin. It was never, so far as I could ascertain, discharged from the wound. What became of it I am unable to say. I should not use this material again.

In a case in which I tied the subclavian and carotid for aortic aneurism last year I used the chromicised catgut which Mr. Lister, and Dr. MacEwen have recommended, and it acted very satisfactorily. I was not, however, aware whether it had been extensively used for tying large vessels in their continuity. Mr. Barwell's ox-aorta ligature has acted safely in several instances, and the kangaroo tendon ligatures appear to be trustworthy. Which of these will prove superior further experience, I think, alone can show. But I should give them all the preference as compared with the silk ligature, since this material is more likely than the rest to resist absorption, and to provoke dangerous ulceration in connection with the artery.

XXXIII.—*A Case of Removal of the Hypertrophied Spleen.* By Warrington Haward. *Read March* 24, 1882.

Ellen O'B., æt. 49, married, was admitted into St. George's Hospital under the care of Mr. Haward, July 7th, 1881. She was sent in by Dr. Champneys, to whom she had applied as an out-patient.

The following history was supplied to me by Mr. G. R. Turner, the surgical registrar:

The patient had been married seven years; she had no children. The catamenia ceased three years ago. She had "typhus fever" ten years ago in Spain. Her health otherwise had always been good. She had never suffered from ague or any intermittent fever.

Her father was said to have died of phthisis, but with this exception there was no history of any hereditary disease in the family.

Eighteen months ago she began to have pain in the left hypogastrium, which was usually worse at night, and especially if she lay on her right side. The pain continued for several months before she noticed any swelling. This she did about ten months ago when, as she was losing flesh, she found that the left side of the abdomen was harder than it should be. She could then detect a tumour of about half the size that it had attained when she came to the hospital. This tumour had, since the time that she first noticed it, steadily increased in size but without any notable pain until the last month, when she began to have pain in the lower part of the back. She has lost flesh a good deal. Has never had any hæmorrhage.

On admission.—She is a rather stout woman of good complexion. Does not look at all anæmic. Temperature, pulse, and respiration natural. Urine natural.

The left half of the abdomen is occupied by a solid tumour which extends from the ribs to the groin, and from the loin to about three inches to the right of the middle line. The tumour is firm, and its anterior margin well defined; it is movable to a moderate extent; it is not tender to the touch; its surface feels smooth. No other glandular enlargement can be detected. The rest of the abdominal and thoracic viscera, as far as can be ascertained, are healthy. She complains of pain in the back, of a dragging sensation in the abdomen, and of the great discomfort due to the weight of the tumour, which she is anxious, if possible, to have removed.

An examination of the blood showed a large excess of white corpuscles, which were roughly estimated at one sixth of the number in the field.

The tumour was evidently an enlarged spleen; and, after consultation with my colleagues, it was decided that if the woman wished I should remove it.

The operation was performed on July 13, the bowels having been previously well purged.

The patient being under the influence of ether, an incision was made through the middle line of the abdominal wall extending from about two inches below the ensiform cartilage to within two inches of the pubes. The enlarged spleen at once presented and was found free from adhesions. In endeavouring to tilt up the lower end of the tumour a rent occurred at its upper margin, from which free hæmorrhage took place for a moment, but the bleeding was speedily arrested by the pressure of a sponge upon the torn part.

The vessels at the hilus, which were enormously enlarged, were then clamped and ligatured, after which those of the gastro-splenic omentum were secured by passing an aneurism needle threaded with silk through the membrane, and tying it in several separate portions.

The connections of the spleen were then severed and the organ delivered without further difficulty. Carbolised silk was used for the ligatures, and the only hæmorrhage of any consequence was that which occurred from the rent in the spleen.

After carefully sponging out the cavity of the peritoneum so as to remove any blood which had escaped into it, the wound was brought together by deep and superficial silver sutures.

The operation was performed with antiseptic precautions, a spray of sulphurous acid solution being used, and the wound was dressed with salicylic wool and eucalyptus gauze.

While the wound was being closed the patient suddenly became profoundly collapsed; breathing ceased, the radial pulse became imperceptible, and the face very blue.

Artificial respiration was at once resorted to. The table was tilted so as to lower the head and chest, and after a few minutes a drachm and a half of sulphuric ether was injected beneath the skin. Almost immediately after the ether injection the patient rallied, and the remaining sutures were then adjusted as quickly as possible, and she was placed in a warm bed. Hot flannels were applied to the head, and she was given a brandy and beef-tea enema.

A second subcutaneous injection of the same quantity of ether was also given.

At 5.30 P.M., three hours after the operation, the pulse was 120 and very weak. Respiration 48. She felt sick. An enema of egg and brandy given.

6.40 P.M.—She was slightly sick, and very restless. Complained of pain in left side of abdomen.

7.20 P.M.—Again vomited. Was conscious and complained of thirst.

7.55 P.M.—Pulse very feeble. Took a little brandy by the mouth, which she retained, also given an egg and brandy enema.

About half an hour afterwards vomiting again commenced, and continued constantly until she died, about seven hours after the operation.

The *post-mortem examination* was made seventeen hours after death by Mr. Zimmerman.

The body measured 5 feet 1 inch, and was well nourished. Hair dark. There was a wound, closed by silver sutures, in the median line of the abdomen.

The heart, lungs, liver, and kidneys were perfectly natural.

No enlarged glands were anywhere observed.

The peritoneum in the neighbourhood of the wound and also that of the gastro-splenic omentum was ecchymosed, elsewhere it was natural. The peritoneal cavity contained about two pints of thin blood-stained fluid, not containing coagulum. The splenic vessels and those of the gastro-splenic omentum were securely tied, and there had been no hæmorrhage since the closing of the wound.

The spleen, after removal and after a good deal of blood had drained from the rent produced during the operation, weighed 7 lb. 8 oz. Its capsule was thickened, and at some parts of an opaque white colour; the organ presented on section the appearance of simple hypertrophy. Mr. F. C. Compton, microscopical pathologist to the hospital, who kindly examined it microscopically, found nothing more than an increase of the natural elements of the organ.

Remarks.—With regard to the question of operative interference in this case two considerations arose. In the first place there seemed no reasonable probability that the woman could be relieved of the splenic tumour otherwise than by operation. But, on the other hand, there was the condition of the blood which might be held to forbid a cutting operation. It is to be remarked, however, that the patient had none of the symptoms usually accompanying leucocythæmia with the exception of the large spleen. There was no palpitation; no dyspnœa; no apparent anæmia; no elevation of temperature; no history of hæmorrhage.

The woman's suffering seemed entirely due to the dragging weight of the tumour. No one suspected leucocythæmia until the blood was examined.

Moreover, in two cases in which I have removed enormous masses of enlarged cervical glands, not only have the patients rapidly recovered from the operation, but there has been an immediate and remarkable diminution in the anæmia from which they suffered. In one of these cases there was a large increase in the number of the white cells of the blood; but although the dissection was a very extensive one, involving the greater part of one side of the neck, and exposing the carotid and subclavian vessels, yet there was not the least difficulty from hæmorrhage, and the wound healed almost by first intention. In this case, although the spleen was not notably enlarged at the time of the operation, it subsequently underwent enormous hypertrophy, and at the same time lymphatic glands in various parts of the body took on active growth; with these changes there came an extreme pallor, and a further increase in the number of the white blood-cells. Such cases seem to show that an increase in the number of the white blood-cells does not in itself necessarily add to the risk of an operation, but that, on the other hand, the operation may be followed, for a time at least, by a marked improvement in the health.

It seemed reasonable, therefore, to give the woman the option of having the operation performed, after explaining to her that it was one of great gravity.

But I must confess that the result was very discouraging. For an amount of shock followed the operation which was quite out of proportion to that usually ensuing upon the removal of large abdominal tumours. I have been surprised when removing large ovarian tumours for instance, to observe how small is the disturbance of the nervous or circulatory systems, even when the adhesions have been numerous and the operation prolonged; but in this case the gravest collapse followed closely upon the ligature of the pedicle, and though this was for a time partially recovered from, the vomiting which ensued was speedily followed by a return of extreme depression and a rapidly fatal exhaustion.

The collapse was certainly not due to hæmorrhage, for the amount of blood shed was not great, and the only serious bleeding took place at an early stage of the operation, and was due, as I have pointed out, to the accidental rent in the spleen itself. My own impression is that the collapse and vomiting depended upon disturbance of the great sympathetic plexuses in the neighbourhood of the splenic vessels.

Whether the condition of the blood added much to the

danger of the operation is I think a doubtful question, and one on which I should be glad to hear the opinions of members of the Society.

I am, of course, aware that leucocythæmia when fully developed is a disease which adds greatly to the risk of hæmorrhage; but what I should like to know is whether the mere increase in the number of the white blood-cells is in itself attended with a greater danger of collapse or hæmorrhage. The cases of glandular disease of which I have spoken, as well as some other considerations, would rather lead me to think that unless the blood change is of a degree or kind to produce physiological manifestation of its occurrence (such as palpitation, dyspnœa, or the like), that an increase in the white blood-cells, demonstrable only by the microscope, is not in itself a condition which adds materially to the risk of an operation.

In the *Lancet* of February 11 of this year Mr. Herbert Collier has collected and arranged in a tabular form all the published cases of extirpation of the spleen for disease. These are twenty-nine in number, and sixteen were cases of leucocythæmia, the remaining thirteen presenting other morbid conditions of the organ. Of the leucocythæmic cases none recovered, while of the thirteen in which leucocythæmia did not exist, eight recovered. The deaths in the leucocythæmic cases seem to have been nearly all from hæmorrhage, so that the table is a confirmation of the opinion expressed by Dr. Gowers* that the tendency to hæmorrhage in leucocythæmia is so great "as to render the operation scarcely justifiable in the advanced stages of the disease."

With this opinion of Dr. Gowers I quite agree, but the question remains whether there is any such serious risk of hæmorrhage as to forbid operation in the early stages of the disease, and in cases in which the blood change, though recognisable under the microscope, is not of a kind or a degree to manifest its occurrence by physiological evidence.

How far the removal of the spleen in the early stages of leucocythæmia would influence the progress of the disease I admit we do not yet know, but it does not appear to me that because the removal of the spleen in cases in which there is no leucocythæmia has not been followed by any alteration in the relative numbers of the white and red globules, that it in the least degree follows that no such alteration would be produced in cases in which there is increased formation of the

* *Reynolds' System of Medicine*, vol. v, p. 304.

white corpuscles. It seems to me that this can only be proved by operating in the early stage of the disease; for it is clearly hopeless to defer doing so until the disease is advanced, and the œdema and dyspnœa indicate, as Dr. Gowers says, "the greatest source of risk, the profound blood change." When this stage has been reached, that is to say, when there is physiological evidence of the blood change, it would in my opinion be improper to undertake any surgical operation which could reasonably be avoided.

Mr. Collier's valuable tables, to which I have above alluded, show that between the fatal and successful cases of removal of the spleen there were other important differences besides the condition of the blood. For instance, the size of the spleen removed. Of the eight cases of recovery the weight of the spleen is given in four, and it varied from 2½ to 3 pounds, the largest mentioned being described as "over 3 pounds;" of the four cases in which the weight is not stated one appears probably to have been a spleniculus, another was a neuralgic wandering spleen, described as slightly larger and heavier than natural, a third was a wandering spleen, presumably, therefore, not materially enlarged, and of the remaining one there are no particulars, excepting that it was "enlarged from malaria."

Of the twenty-one fatal cases the weight is given in all but three, and it varies between 2 lb. 14 oz. and 18½ lb. The average being 8 lb.

It is obvious that when the spleen has attained a large size the operation is likely to involve a greater disturbance of the sympathetic nerves, that there is a greater probability of adhesions being met with, and that a large amount of blood being suddenly removed from the circulation, the shock is necessarily greater.

Most of the fatal cases also were of more advanced age than those that recovered.

Concerning the operation itself I would briefly state a few conclusions to which I have been led by a consideration of the operations of others and the performance of this one myself. First, the incision in the middle line seems to me the most convenient for removing an enlarged spleen, it gives the best view of the parts and allows easy access to the pedicle. Secondly, when the spleen is much enlarged great care is needful to prevent any laceration when lifting it out of its position. Thirdly, no traction should be made upon the splenic vessels, nor should any attempt be made to twist the

pedicle. Fourthly, the vessels of the gastro-splenic omentum should be secured before the pedicle is dealt with. Lastly, that if there be any difficulty in tying the pedicle before removing the spleen, a pair of large clamp forceps should be placed upon the splenic vessels, the organ then removed by cutting between it and the clamp, after which the vessels can be clearly seen and tied, and the clamp dispensed with.

XXXIV.—*On Cases of Antiseptic Ligature of Arterial Trunks in their continuity.* *By* HECTOR C. CAMERON, M.D. *Read April* 28, 1882. *Communicated by* J. LISTER.

THE notes of cases of ligature of arterial trunks in their continuity, which I am about to read, include all in which I have performed such an operation, whether for aneurism or accidental wound. The material employed was antiseptic catgut, prepared by one or other of the methods suggested by Mr. Lister, of medium size, and tied in a reef knot with sufficient tightness to ensure division of the inner and middle coats of the vessel. Accurate coaptation of the cutaneous margins of the wound was practised, except at the part left open for drainage, by means of stitches of carbolised silk or silkworm gut, with an occasional stitch of thick silver wire for the purpose of relaxation, where that seemed desirable. Free drainage was effected by means of india-rubber drainage-tubes in all the cases, except one, in which a number of strands of carbolised catgut were employed. The operations, as well as the subsequent dressings, were conducted with rigid antiseptic precautions.

CASE 1. *Traumatic aneurism of the brachial artery; ligature of the brachial artery; recovery.*—M. R., æt. 38, a labourer, in good general health, was admitted into the Glasgow Royal Infirmary on July 17, 1876. The following report of his case was entered in the ward journal:

On admission there exists a large and irregularly-shaped swelling at the lower and inner part of the left arm. It extends round the anterior aspect of the arm to its outer border, and posteriorly quite to the middle line. Its lower limit corresponds pretty accurately with the fold in front of

the elbow. It measures vertically 3¾ inches, and transversely 7½ inches, these being respectively the longest measurements in either direction. The circumference of the limb, measuring over the most prominent part of the tumour, is 12⅞ inches. Over the whole of the swelling there is well-marked distensile pulsation, entirely controlled by compression of the brachial artery. A very distinct thrill exists in the upper part of the tumour, and a loud, blowing systolic bruit. This thrill and bruit can be felt and heard in the course of the artery to some little distance beyond the upper limit of the tumour, or, in other words, to about the middle of the arm. Over this part of the vessel the pulsation is much broader than that of a normal brachial artery, and gives one the impression that it is due rather to a funnel-shaped prolongation upwards of the aneurismal swelling. A little pain is complained of in the back of the thumb and forefinger. About six months ago he was struck by a rivetting hammer in the situation where the tumour now exists. From that he dates his pain, and a few days afterwards he observed a slight swelling which throbbed strongly. This increased slowly till a week ago, when it began to advance rapidly.

July 21.—Yesterday at 3.30 P.M. Dr. Cameron put a carbolised catgut ligature round the brachial artery in the first part of its course. The incision commenced in that part of the skin from which the axillary hairs grew, and which was, of course, previously shaved. Drainage was provided for by means of a few threads of catgut similar to that with which the vessel was tied. Immediately on the ligature being tightened all pulsation ceased in the tumour, and has not since returned. On being put to bed the left hand and forearm were felt to be perceptibly colder than the right, and were wrapped in cotton wool. Within an hour warmth had begun to return to the part. In the evening his pulse was 80, and he made no complaint except of heat in the left hand, which was perceptibly hotter to the touch than the other and sweating freely. He slept well last night, and has no pain. Dressings changed. Wound promises to heal by first intention, and has drained well.

July 22.—Slept well last night. Took breakfast with relish. Dressings changed. Some sero-sanguineous fluid, free from odour, in the dressings. Complete absence of pain, redness or swelling near wound. Pulse 80, tongue clean. Since the operation he has had a little cough and complains of some pain over the heart. To have a dose of castor oil.

July 23.—Castor oil acted freely twice yesterday. He rested well during the night and expresses himself as feeling very well. On dressing the wound it is found united throughout its extent, except where the catgut drain hangs out at its lower angle. The bloody serous discharge has quite ceased, and on the dressing there is only a moist stain of about the size of a florin, although it is evident that every drop of fluid exuded is draining freely from the wound. The limb is entirely free from any redness, swelling or pain. No return of pulsation in tumour or at wrist. Dressings applied as before.

July 24.—Dressings changed on account of being rather loose. Discharge almost *nil* and quite colourless. Catgut drain still holding.

July 25.—Had slight diarrhœa during the night, for which castor oil and laudanum were prescribed. Dressings not changed.

July 26.—Diarrhœa has entirely ceased. Slept well and took breakfast with relish. Has no complaint whatever. Wound dressed. Discharge almost *nil, i.e.* only a little dampness where the "protective" is in contact with the catgut drain, which is still holding. All the stitches, except the one next the catgut drain, were removed to-day. Pulse 68; allowed to sit up in bed.

July 28.—Patient got out of bed this morning contrary to orders, but no harm has ensued. Dressings changed as usual. Only a slight damp stain opposite the catgut drain, which now looks as if it were on the point of separation. Patient well in every respect.

July 30.—Wound dressed; the part of the catgut drain which was outside the wound had separated and was lying loose, except two strands, which, however, on being touched, fell off; remaining stitch removed. Wound from end to end remains a sound linear scar, except the small point where the drain had protruded. Aneurism now very firm and reduced distinctly in size. Patient allowed to get out of bed for a short time.

Aug. 3.—Wound dressed; a small spot the size of a pin's head, where catgut drain separated, still uncicatrised. Patient's only complaint is that of a numbness in the thumb and outer side of the forefinger. He is out of bed a part of each day.

Aug. 7.—Patient in perfect health. Dismissed.

Dec. 17.—Returned to show his arm. The swelling is

gone, a little hard knot about the size of a filbert being the only remains of it. Measures 9¼ inches in circumference; the other arm at the same level 9½ inches. He has been regularly at work during the last three months. Complains occasionally of coldness and numbness of the fingers.

It is only necessary for me to add that this patient was re-admitted to my wards in the following winter, suffering from a limited mortification of one or two toes, from which he also made a good recovery. His arm, he told us, was in every respect as useful and strong as it had ever been.

CASE 2. *Large diffuse popliteal aneurism; ligature of femoral artery; recovery.*—A. H., æt. 44, at one time a soldier but now engaged in an engineering factory, was admitted into the Royal Infirmary on July 14, 1880, with a large popliteal aneurism, extending almost as high as the junction of the lower with the middle third of the thigh on its inner and anterior aspects. He stated that a month previous to his admission he noticed a small pulsating tumour at the back of the knee, which gave rise to some uneasiness but did not prevent him going about as usual.

On July 8 (six days before admission) he suddenly felt, while at work, this tumour give way. On examining the part he noticed that the swelling had greatly increased, while the pain became so severe as to make him discontinue work. From the date of that occurrence the tumour had steadily increased in bulk. Pulsation could be distinctly seen and felt in it, and was completely controlled by compression of the femoral artery. There was some œdema of the foot and leg.

On July 19 I ligatured the femoral artery at the apex of Scarpa's triangle with carbolised catgut. The usual dressings were applied and the leg was wrapped in cotton-wool. In the evening the limb was warm and the patient felt comfortable.

On July 21 the dressings were changed and a small drainage-tube, which had been inserted at the time of the operation, was removed. A slight quantity of bloody serum stained the dressings.

On July 24 the wound was again dressed, and was found to be healed except at its upper end, where the drainage-tube had lain. In all respects the patient's general condition was most satisfactory. The tumour, from which all pulsation was absent, continued rather soft and fluctuant.

On July 27 the stitches were removed and, with the

exception of a small uncicatrised spot at its upper end, the wound was found to be entirely healed.

On July 29 the dressings were discovered to be very loose, as the patient, in spite of warning, was very restless and even sat up occasionally in bed. They were therefore removed, and a stitch, which had been omitted on the last occasion, was taken out. The wound was entirely sound, but a small dressing was put on just to prevent the scar from being rubbed or irritated in any way by his movements.

From this date the patient continued perfectly well, but in spite of the limb being kept as much at rest as possible and being well-bandaged, the tumour decreased in size only very slowly.

On Sept. 17 he was allowed to go home, the remains of the aneurism being then comparatively insignificant. About two months afterwards he returned to show us that the last traces of it had disappeared and to report himself as being in excellent health. The temperature in the axilla on the evening after the operation was 101° (it had not been taken previously), and for six days never fell below 100°. After that it became and continued normal.

Case 3. *Popliteal aneurism; ligature of femoral artery; recovery.*—Mr. ——, a commercial traveller, was seen by me in consultation with his usual medical attendant in September, 1880, on account of a popliteal aneurism from which he had suffered for a short time. The tumour occupied the right ham and was about the size of an orange. It occasioned considerable uneasiness in the limb, and was said to be distinctly increasing in size. The patient was a married man with a family of three healthy children, and had always considered himself very robust. He was, however, for a man of his age, unusually corpulent. By our advice he went to the "Nurses' Training Home and Private Hospital," Renfrew Street, Glasgow, when on Sept. 23, 1880, I tied the femoral artery at the apex of Scarpa's triangle with carbolised catgut, when all pulsation at once ceased in the tumour. In the evening he expressed himself as very comfortable; the foot and leg of the limb operated upon having recovered warmth, while his temperature was 98·4°. On the 24th he was well in all respects, his morning temperature being 98·8°, while in the evening it rose a degree higher. On the 25th I changed the dressings, into which a considerable quantity of bloody serum had soaked. The wound (which was much longer than usual, owing to the great thickness of the subcutaneous fat) bid fair

to heal by primary union. On the 28th I again dressed it, removing the drainage-tube and all stitches except one. Only a slight amount of sero-sanguineous fluid had escaped into the dressings, although the drainage had apparently been perfect. On Oct. 1 the remaining stitch was removed; the wound was soundly healed, except at its upper extremity where the drainage-tube had lain. At this point there remained a small part still uncicatrised, but to all appearance superficial, and in a few days it was a complete scar. The temperature, which was regularly taken, was normal throughout, while in every respect the patient's health appeared undisturbed. The aneurism, which had become consolidated as an immediate effect of the closure of the femoral artery, began to be rapidly absorbed, and when he returned home on Oct. 11 (exactly eighteen days after the operation) was much reduced in size. I saw him some months afterwards and found all traces of the tumour gone. His only complaint was that of a feeling of weariness in the limb when he walked any considerable distance. Even that slight discomfort, however, has now disappeared, and he attends to all his ordinary business without inconvenience.

Case 4. *Femoral aneurism; ligature of external iliac artery; recovery.*—T. L., æt. 43, was admitted into the Royal Infirmary on Feb. 12, 1881, he had a few days previously applied for advice in the out-door department of the hospital on account of a pulsating tumour of the right groin. On examination it was found to be an aneurism of the femoral artery just under Poupart's ligament, and extending both above and below that structure. It was strongly pulsatile, and its movements were at once stopped by compression of the external iliac artery. He stated that he had been hitherto a particularly healthy man, never having been laid up except once, when he had jaundice. He had been for many years in the navy, and latterly acted as janitor of a boys' school. He had comparatively recently married, but was without family. He had suffered from syphilis in youth.

His attention was first drawn to his present ailment by sharp, shooting pains passing down the inner side of the thigh and leg. This was in June of the previous year, and in July he noticed a pulsating tumour in the groin, about the size of a marble, which gradually increased until his admission to hospital, when it was found to be of oval form and measured 3½ inches in length. Over its most prominent point was a

scar about an inch long the result of an incision made in 1876 for the evacuation of a suppurating bubo. At this point the integument was so thinned as to suggest the possibility of an early rupture. His chief complaint was that of severe pain in the back and thigh, which quite prevented him from walking far. On Feb. 15 I tied the external iliac artery with a piece of antiseptic catgut given to me by Professor Lister, and which had been prepared, I believe, by a method described by him in the *Lancet* of Feb. 5, both chromic and carbolic acids having been made use of.

At night he was well and quite free from pain, but was suffering much from chloroform sickness. The following notes of his case are taken from the ward journal:

Feb. 16.—Slept pretty well during the night, but vomiting frequently when awake. Complains of no pain in the wound except during vomiting. Pulse 84, temperature 99°. Tongue somewhat furred, and complains of thirst. Wound dressed. It has drained well; a considerable quantity of bloody fluid having saturated the outer part of the dressing.

Feb. 17.—This morning the wound was again dressed. Some serous discharge on the dressing. Temperature 99°.

Feb. 18.—Vomiting has entirely ceased. Patient feels quite well and has a normal temperature. Wound dressed, and only a little serous discharge found on dressing.

Feb. 20.—The drainage-tube has been removed, a shorter one of small calibre substituted. No discharge on the dressing.

Feb. 22.—The tube has been shortened, so that just sufficient is left to enter within the orifice of the wound and keep it open. Three of the stitches have been removed.

Feb. 26.—Since last note patient has progressed satisfactorily, sleeping and eating well, and making no complaint of pain. Temperature throughout has been normal. The wound was dressed to-day, and a stain of brownish serum about the size of a florin was found on the dressing. Nothing could be squeezed out. The remaining portion of the drainage-tube and the rest of the stitches have been removed. The wound has healed thoroughly, except where the little piece of drainage-tube lay. The aneurism is firmly consolidated, and has undergone a marked decrease in size.

On the removal of this dressing about a week afterwards cicatrisation was found to be complete. On the 20th March he was allowed to leave his bed, and on the 30th he returned home.

He consulted me lately on account of a slight tendency to

the formation of a hernia at the outer end of the cicatrix, and I recommended him as a precaution to wear a truss. All trace of the aneurism is gone and he was in excellent health.

CASE 5. *Aneurism of the arch of the aorta and innominate artery; simultaneous ligature of right subclavian and carotid arteries; recovery.*—Mrs. W., a widow without family, æt. 57, consulted me in the beginning of last month in regard to a pulsating tumour just above the right sterno-clavicular articulation. She first became aware of its presence about four years ago, but had paid little attention to it until lately, when she was informed by her medical attendant of its serious character. He advised her to call upon me so that the question of whether or not surgical interference was advisable might be raised, and afterwards determined upon by us. The tumour, which was clearly aneurismal, extended for some little distance into the neck, and reached outwards in the form of a pointed and prominent prolongation of the main swelling to beyond the outer border of the sterno-mastoid muscle. This portion of it was very movable. If a finger was placed on each side in order to distinguish the distensile character of the pulsation and a little pressure made it slipped readily from between the fingers and disappeared under the border of the muscle, starting forward again immediately on the hands being removed. Pulsation of a marked but more diffused character could be distinctly seen and felt also in the episternal notch. On being closely questioned the patient stated that she occasionally coughed a little at night on first going to bed, and once or twice had experienced a trifling difficulty in swallowing. No other symptoms and no serious inconvenience had as yet been caused by the disease, but it seemed evident that it was making steady progress in size. Simultaneous firm compression over the right subclavian and carotid arteries produced a distinct effect in diminishing both the force of the pulsation and the prominence of the tumour. On March 22 she was seen and examined by Dr. Finlayson, one of the physicians of the Western Infirmary, who has kindly furnished me with the following short note of her case as observed by him on that occasion:

"There was a very distinctly pulsating tumour involving apparently the innominate artery. It could be felt as a movable tumour, sliding to some extent behind the sterno-mastoid on being handled. Pulsation, continuous with this tumour, extended into the sternal notch, and in that position had a heaving

character. Careful examination in the upper part of the sternum, and in the contiguous part of the chest-wall just below the pulsating tumour, failed to discover any heaving impulse; but an obscure shock, coincident with the second sound of the heart, could be felt. On auscultation, the most prominent fact was the greatly deepened quality of the second sound, but no murmur was audible in any part of the chest. A murmur was developed, of course, over the pulsating tumour on applying distinct pressure. On percussion there was a very pronounced area of dulness, extending from the right sterno-clavicular region towards the cardiac dulness, and measuring about 2 inches transversely. The determination of the cardiac dulness was difficult owing to a very full mammary development, but there did not appear to be any marked cardiac hypertrophy. The radial pulses were as nearly as possible equal, and there was no difference in the size of the pupils. No pressure signs were recognisable, and the patient does not appear to suffer much inconvenience from the disease. The signs seemed to me to indicate clearly an aneurism of the arch of the aorta of considerable size and specially involving the innominate artery."

On March 24, with the concurrence of those associated with me in the treatment of the case, I ligatured the right subclavian and carotid arteries with antiseptic catgut, which had been kindly sent to me by Mr. Lister. It had been prepared by immersion in a one-per-cent. solution of chromic acid for twelve hours, and afterwards for twelve hours in the solution of sulphurous acid of the British Pharmacopœia. I placed both ligatures, by Mr. Lister's directions, in watery solution of carbolic acid (1 to 20) for about half an hour before using them. That used for tying the subclavian was rather thicker than that with which the carotid was tied. The situation of the tumour (it extended, as I have said, somewhat beyond the outer border of the sterno-mastoid) interfered a little with the dissection usually practised in finding the subclavian artery, since I could hardly cut so far inwards as to expose the scalenus anticus muscle. I found the vessel, however, and passed the ligature round it without any serious trouble. The carotid was tied immediately below the omohyoid muscle. Drainage-tubes were as usual placed in both wounds. The immediate effect of the operation on the tumour could hardly be well estimated, as the patient continued under chloroform until some time after the neck was enveloped in the dressings, pale and faint, and with a feeble action of the heart.

The operation was performed at two o'clock and at five I saw her again. She felt pretty well, but complained of sickness and of some pain in swallowing. The hand and arm, which had been wrapped in cotton wool, were very warm; but the right side of the face, and especially the right ear, felt distinctly cold to the touch. A layer of cotton wool was therefore placed over that part of the head. Her temperature was then 97·4°, but in three hours afterwards had risen to 98·4°.

On March 25 she was comfortable and free from pain. Both head and arm were warm. She had short periods of sleep during the night, and had experienced no feeling of sickness since seven o'clock in the morning. Her temperature in the morning was 98·2°, it rose in the evening to 99°.

On March 26 it is noted that the patient had slept for five and a half hours during the previous night. She complained of no pain or sickness, and had drunk freely of milk. I changed the dressings for the first time. The wounds had furnished a considerable amount of the usual sanguineous fluid, and were evidently uniting very satisfactorily. Temperature in the morning 99·2°, in the evening 99·4°.

On March 29 the dressings were again changed. The discharge, which was serous in character, was small in amount. The drainage-tube was removed from the upper wound, and that of the other wound was very considerably shortened. The temperature was normal, and the patient feeling quite well.

On April 2 the wounds were next dressed. The remaining piece of drainage-tube and almost all the stitches were removed. The upper wound was all but sound and had furnished no discharge; from the lower there had exuded clear fluid sufficient to make a stain about the size of a florin on the dressing.

On April 5 the wounds were dressed for the fourth and last time, the remaining stitches being removed. The upper wound was sound, and only two parts of the lower remained uncicatrised, viz. at its outer extremity, where the drainage-tube had lain, and at the junction of the horizontal and vertical incisions by which it was made, where the cutaneous margins had not been quite accurately coapted. When this last dressing was removed, on April 12, both wounds were complete cicatrices from end to end. On that day Dr. Finlayson again made an examination of the patient, and has furnished me with the following note of it:

"April 12.—The incisions are now healed. The defined tumour, described as existing behind the sterno-mastoid muscle, cannot be recognised; but there is marked pulsation in this

situation, which extends towards the sternal notch in a very pronounced manner and is associated with much heaving there. Indeed, the heaving pulsation at this point seems to me to be more marked than before the operation, although the whole pulsating area is, no doubt, less. The dulness on percussion in the upper part of the chest, the deepened second sound, and the sense of shock on application of the hand still continue very distinct; but there is no heaving impulse to be detected there and no murmur. The radial and temporal arteries do not pulsate on the right side."

This patient continues in perfectly good health, but, by my advice, remains in bed in order to obtain as much benefit as possible from the operation.

In the five instances of aneurismal disease which I have narrated, six large arteries, it will thus be seen, were ligatured. In each complete and permanent occlusion of the vessel was obtained without any constitutional or local disturbance, without any rise of temperature (if we except the case of diffuse popliteal aneurism during the first six days after the operation), and without the formation of one single drop of pus. In each case the last dressing was applied respectively on the 14th, 10th, 8th, 11th, and 12th day after operation, and in each, on the removal of that dressing, the wound was discovered to be completely sound.

On similar principles the radial artery has been ligatured four times and the ulnar artery twice, on account of accidental wounds in patients under my care in hospital by various house-surgeons from time to time acting in the wards. Of these cases I possess no extended notes, but all made good recoveries without further hæmorrhage or other form of local inconvenience, and from recollection I may state that almost all of the wounds pursued the same course as that of the cases I have already described.

The only other large artery which I have had occasion to tie in its continuity on account of wound is the popliteal, and the facts of that case I may shortly state.

Case 6. *Wound of popliteal artery and vein; ligature of artery; gangrene of anterior part of foot; amputation; recovery.*—W. R., a butcher, æt. 31, was admitted into the Royal Infirmary on December 24, 1880. About half-an-hour previous to his admission he had been engaged cutting up a large piece of meat suspended in front of him, and when making a deep and long cut into it with great force from

above downwards, the knife slipped and was plunged into his thigh a little above the knee-joint and somewhat to the inside of the middle line. An alarming hæmorrhage at once followed and he was taken in a cab to hospital with his butcher's apron tightly bandaged over and above the wound. On admission he was extremely pallid and faint, the pulse at the wrist being at times imperceptible, while his flannel drawers, trousers and apron were found to be much saturated with blood. A tourniquet was placed on the limb and stimulants administered. An examination by the finger of the small wound above the knee showed that the knife had penetrated to the femur and been thus deflected inwards to the popliteal space. On being summoned, I had the patient placed under chloroform and laid the wound fully open, with a probe-pointed curved bistoury passed along my finger as a director. In reality I cut little more than skin and fat, as most of the muscle appeared to have been divided. With some trouble I found the wound in the popliteal artery in the first part of its course, just before it begins to pass towards the back of the femur. The loose cellular tissue was greatly distended with clot, and I turned out as much of it as could be conveniently reached. Carbolised catgut ligatures were placed on each side of the wound and the tourniquet removed. All arterial bleeding was now controlled. Still, however, a constant slow venous oozing continued from the depth of the wound and did not entirely cease until it was finally stitched and dressed. Watery solution of carbolic acid (1 to 20) was injected freely, and the wound was stitched and dressed in the usual way under the spray, a full-sized india-rubber drainage-tube being introduced at its lower end. The traction upon the stitches, which resulted from an increasing distension by coagulum in spite of the drainage-tube, caused three of them to cut their way out and so admit of a gaping of one end of the wound. The deep portion of it healed without any suppuration, and at no time after the first day did the patient complain of any pain in it; redness and inflammatory swelling being entirely absent. In a fortnight boracic lint was substituted for the antiseptic gauze, the superficial gaping part of the wound having granulated. Under this dressing healing was completed with a trifling amount of superficial suppuration.

While the condition of the wound was thus throughout very satisfactory, it was otherwise with that of the foot, which gave cause at an early period for anxiety on account of the coldness and white colour of the toes, and it was soon apparent

that the vitality of the anterior part of the foot was lost. The gangrene proved of the dry variety, and the part ultimately became black, hard, and shrivelled. From the time when my suspicions of its fate were aroused the foot was kept constantly wrapped in antiseptic cotton wool, having first been thoroughly washed with the carbolic acid lotion. It was examined from time to time under the spray and never showed any sign of putrefaction.

On April 5 I performed Syme's amputation of the foot; and, although a small portion of the flap sloughed, he recovered quickly with a fair stump and left the hospital, in good health, at the end of May.

XXXV.—*A Case of Spina Bifida—Arachnoid Hernia—cured by Injection of Iodine.* By A. Pearce Gould, M.S. *Read April* 28, 1882.

THE child shown to-night was recently under my care at the Westminster Hospital. The mother stated that at its birth a tumour about the size of a bantam's egg was noticed over the lower part of the spine, this had gradually increased in size and was noticed to swell and become very tense when the child cried. For five months the child had worn a bandage with a hollow pad to support the tumour, and had had the tumour painted with collodion. The child, a male, came under my care in January, 1882, being then six months old. He was healthy looking and well developed. Over the lower lumbar spines was a sessile tumour about the size and shape of a tomato, divided into two parts by a vertical median groove, the right division being the larger. The skin over it was normal. The tumour fluctuated, was quite translucent, no cords were seen crossing it, it was fixed to the spine, compressible, and when compressed the anterior fontanelle, which was still rather widely open, was felt to become fuller. The tumour became tenser when the child cried. There was no paralysis of sphincters or limbs; and no talipes. No evidence of hydrocephalus.

On Jan. 17 I drew off about ℥j of fluid from the tumour and injected ʒj of Dr. Morton's iodo-glycerine solution. The child did not show any immediate effect from the operation.

On Jan. 24, the tumour being in exactly its former condition, I again tapped it and drew off ʒiv of the fluid and injected ℥iss of the iodine solution.

Jan. 26.—No fluctuation in tumour, which now had the consistence of jelly.

Jan. 28.—Tumour rather firmer and shrinking.

Feb. 2.—The child was discharged to-day. The tumour is now quite solid and less than half its original size.

March 24.—The child is now in good health, and all that is seen is a small puckered thickening of the skin over the lower lumbar spines.

Remarks.—The fluid withdrawn from the tumour was carefully examined by Dr. Dupré, who was unable to detect the least trace of sugar in it. In this it differed from the fluid removed from a case I recorded in the *Transactions* of this Society four years ago. I infer from this that it was contained in the sac of the arachnoid membrane, and was not true "cerebro-spinal" fluid. The covering of good skin, the absence of nerve cords in the sac, support this view, and the case was thus the most favorable possible for radical treatment. I found that the iodo-glycerine solution was not readily miscible with the very limpid fluid of the sac; when allowed to drop into a small quantity of the clear limpid watery fluid it at once sank to the bottom and formed a dark, sharply defined stratum below it. It is this fact which induced Dr. Morton to recommend the solution of iodine in glycerine, as being less diffusable than an aqueous solution, and therefore less likely to enter the spinal canal and set up inflammation there.

XXXVI.—*A Case of Congenital Intestinal Obstruction.* By A. Pearce Gould, M.S. *Read April* 28, 1882.

B., a female infant, three days old, was admitted into Westminster Hospital under my care on August 5, 1881. She was a small, thin, but apparently well-developed child, and was brought to the hospital because she had not passed meconium or motion, and that in spite of the administration of "several doses of castor oil." She had vomited several

times. Before I saw the child my colleague, Mr. R. Davy, had introduced his little finger into the anus.

I found the belly uniformly distended. The anus was normal, and into it I passed the last joint of my little finger, and then felt the gut narrowed, but could not feel any septum or actually the end of a *cul-de-sac;* through the rectum I could feel a firm rounded coil of intestine, which proved afterwards to be the sigmoid flexure. I passed a gum catheter and a probe into the rectum, but could not with the force which I felt justified in using pass either of them further than my finger. I decided to do Littré's operation, and at once (1 A.M. Aug. 6) had the child anæsthetised with chloroform. I made my incision in the left groin parallel with and above Poupart's ligament, and found the belly wall œdematous, and on incising the peritoneum some ascitic fluid escaped. A coil of congested and distended gut at once presented, but it was small intestine. I tried to find the large intestine but could not, but the finger, passed into the pelvis, felt the firm round coil I had felt through the rectum. As there was no choice, I opened the presenting coil of intestine and stitched it carefully to the edges of my skin wound. A large quantity of meconium at once escaped, but none went into the belly. A pad of absorbent salicylic wool was placed over the wound and ordered to be changed as required.

The child was not sick afterwards, but next afternoon was evidently sinking, and died at 10.30 P.M. (21½ hours after the operation) without any special symptom. Nothing passed *per anum*.

I made the autopsy on August 7. The intestine showed only slight signs of adhesion to the wound. There was no trace of peritonitis. The whole peritoneal surface quite up to the wound was clear and glistening. Veins of mesentery full. Stomach and small intestine greatly distended. Cæcum and all the great intestine small and contracted. The gut had been opened just below the middle of the small intestine, forty-two inches from the pylorus; above the opening it was distended with gas and a little fluid, and below it with meconium. The lowest four inches of the ileum, the cæcum, and the first four inches of the colon, were filled with a firm substance of the consistence of cheese, firmly applied to, but not incorporated with or adherent to, the mucous membrane; at its upper end this was greenish in colour and softer in consistence than the rest, which was white in colour. Below this the colon contained in places small masses of milky-white thick mucus. The great

intestine was perfectly developed, but empty and firmly contracted to the size of a pipe-stem. The coil felt through the rectum was found to be the sigmoid flexure. The other viscera were healthy.

Remarks.—The points in this case to which I desire to call attention are three:

1. The nature of the case.
2. The diagnosis.
3. The treatment.

1. *The nature of the case.*—This differed from most similar cases in that there was no fault of development. It was a case of obstruction by a plug of inspissated mucus. This plug had none of the appearances of a new growth, it was not adherent to the mucous membrane, and it tailed off at each end into ordinary mucus. It somewhat resembled the intestinal plug exhibited to this Society by Dr. Markham Skeritt three years ago.*

The obstruction was evidently formed early, for the intestine below was quite empty, and the plug itself was uncoloured by bile, which passes into the duodenum at the third month of intra-uterine life. The completely contracted state of the intestine below the plug shows that no secretion from the mucous membrane of the large intestine took place before birth. A section of the wall of the lower end of the ileum shows it to be normal in structure.

2. *The diagnosis.*—In Mr. Holmes' article on the "Surgical Diseases of Children" in his *System of Surgery,* he mentions that M. Depaul had successfully diagnosed two cases of congenital obstruction of the lower part of the small intestine. "There were the usual symptoms of obstruction; the abdomen was swollen, the anus and rectum were natural; clysters would pass, but soon returned without meconium; a flexible tube could be introduced for a considerable distance, but brought away no fæces." It is not stated what the obstruction was, and the reference is not given. Mr. Holmes, in a footnote, adds: "I once saw a case of the kind in which the diagnosis was rendered erroneous by the fact that we could not pass any large quantity of injection. In fact, it returned almost instantly. After death, however, the obstruction was found quite high in the small intestine." Here, again, the nature of the obstruction is not stated. The failure of the attempt to adminster large clysters possibly arose from the contracted state of the gut, as in my own case, but Mr. Holmes does not state this.

* *Clin. Soc. Trans.*, vol. xii, p. 97.

3. *The treatment.*—I believe this case may be fairly held to strengthen the opinion that in all cases of congenital intestinal obstruction Littré's operation is to be preferred to lumbar colotomy. Had I attempted colotomy in this case I should have entirely failed.

But the question arises whether this plug could have been dislodged by any treatment, by the repeated administration of enemata, for instance. My opinion at the time of the autopsy was that any such attempt would have been futile.

XXXVII.—*A Case of Primary Perichondritis of the Larynx.* By F. de Havilland Hall, M.D. *Read April* 28, 1882.

M. C., æt. 24, a dust-collector, was admitted into the Westminster Hospital on September 6, 1881, suffering from dyspnœa, which, in spite of the ordinary remedies, became so urgent as to necessitate the performance of tracheotomy on September 10. Eight years ago he had "a running," followed by a suppurating bubo in each groin. No history of any eruption could be elicited, there is no appearance of any scar on the penis or prepuce, the tibiæ are not irregular, the sub-occipital glands are not enlarged, and though for the last four years he has complained from time to time of pains in his limbs, these are referred to the knees and shoulders, and are apparently of rheumatic origin. Therefore, so far as it is possible to arrive at a negative conclusion, the patient has not suffered from constitutional syphilis. About Christmas, 1879, he had a cough and rheumatic pains, and was in Lambeth Infirmary for some weeks. He states that he has been hoarse since that time; the hoarseness came on quite suddenly. He went to bed one night able to speak clearly and in the morning he could hardly speak at all.

In the winter of 1880—81 he had a cough (he said that he suffered from bronchitis), and this has continued more or less, so that he has been unable to work since Christmas, 1880. About May, 1881, he had "a sore throat" (he points to the thyroid cartilage as the situation of the pain) and difficulty of swallowing, but he had no difficulty in breathing till June; this

came on suddenly. One morning while in bed he had a violent fit of coughing, and after this he had difficulty in getting his breath. In August he expectorated some blood and matter, which relieved him somewhat, but there is no evidence of anything like cartilage being expectorated. In the beginning of September he became much worse, suffering from great difficulty in breathing, paroxysmal cough and hoarseness, and in this condition he was admitted.

I did not see the patient until some days after tracheotomy had been performed. I then found that the epiglottis was intact, the glottis greatly contracted in all its diameters, the cords being much reduced in length, the right one moving slightly on phonation anteriorly and posteriorly, but the central part remaining incurved, leaving a narrow elliptical opening, the thickened and hardly recognisable remains of the left cord being immovable nearly in the median line, and the arytenoid fixed. On deep inspiration the glottis would about admit a No. 12 catheter. There was a considerable amount of inflammatory swelling in the ary-epiglottic folds, especially on the left side.

While in the hospital he had iodide of potassium at first in five-grain doses, and afterwards in ten-grain doses, three times a day. Notwithstanding that the swelling diminished and the glottis increased in size, he was discharged on November 22 still wearing the cannula, all attempts at leaving it off being followed by great dyspnœa, though on one occasion he managed to breathe for half an hour without it.

On December 31 he expectorated a piece of ossified cartilage, and two smaller pieces on January 3, the larger piece being apparently a portion of the cricoid cartilage. For some weeks he attended as an out-patient, and on January 28 I admitted him again into the hospital with the view of dilating the larynx; on February 11, however, he discharged himself in consequence of some disagreement in the ward, and he is now an out-patient under my care. In order to preserve the tone of the muscles opening the glottis I have instructed the patient to plug up the cannula for as long as possible, and I am introducing gum elastic catheters of different sizes into the larynx preparatory to adopting Schrötter's method of dilatation.

It is not, however, with reference to the treatment to be pursued that I have brought this case forward, but on account of the absence of all the usual causes of perichondritis. On the most careful inquiry I could only elicit an account of an illness, which he terms bronchitis; with this exception his health has always been good. Syphilis may also, I think, be

excluded with certainty. The patient is a well-nourished man and anything but cachectic in appearance. There is no suspicion of pulmonary phthisis and there is no history of any blow over the larynx. I am, therefore, forced to the conclusion that accompanying the bronchitis (if it was bronchitis from which he suffered) at Christmas, 1879, he had laryngitis, and by extension of the inflammatory mischief the cricoid cartilage became affected and eventually necrosed.

This is the more probable, as from the nature of his occupation he was necessarily much exposed, and he states that he has had occasion to use his voice excessively.

Dr. Felix Semon was good enough to see the patient with me in the beginning of December. Even then the diagnosis of perichondritis could be established. If any doubt existed the expectoration of the ossified cartilage later on would have dispelled it.

Morell Mackenzie and Ziemssen's figures show that, as in this case, the disease is most common in the third decade of life. The former says that as a primary phenomenon this disease is very rare; but he, as well as Ziemssen, mentions cases in which no cause for the lesion could be detected. Doubtless, as attention is directed to this subject and as the laryngoscope is coming more into the routine of daily practice, we may expect to have additional cases reported from time to time.

In reviewing the symptoms in this case it is to be noticed that the first symptom which would point to the commencement of the perichondritis was the occurrence of difficulty in deglutition and pain referred to the pomum Adami, this symptom being characteristic of implication of the cricoid, particularly when the posterior surface of that cartilage is affected. As Ziemssen justly remarks, these cases require most careful examination and watching as soon as symptoms of laryngeal stenosis make their appearance, as an increase in the stenosis, leading up to complete obstruction, may come on quite suddenly. In the case under consideration dyspnœa came on very suddenly, and was only relieved when the abscess gave way and the matter was expectorated. In spite of the temporary relief he then experienced, the dyspnœa continued to increase, and tracheotomy was required, as I have stated above.

Porter* connects primary perichondritis with a degenerative change taking place in the cartilages, and gives an admirable account of the symptoms.

* *Surgical Pathology of Larynx and Trachea*, p. 130.

The same author describes, under the head of phthisis laryngea,* a case of perichondritis, without any obvious exciting cause, in which subcutaneous emphysema occurred, an accident which, according to Ziemssen, is extremely rare. He only mentions two cases, one recorded by Wilks and the other from his own practice. In both these instances the perichondritis was the result of typhus fever and had a fatal termination. Porter's patient recovered after tracheotomy, in spite of ten-grain doses of calomel given every three hours and frequent venesections, and was able to earn his livelihood at the laborious occupation of a stone-cutter.

XXXVIII.—*Angiectasis of the Hand and Fingers.* By Thomas Smith. *Read May 12th,* 1882.

E. B—, a healthy girl, æt. 25, employed in domestic service, came under my care at St. Bartholomew's February 21, 1882. She had lost a large quantity of blood from an abrasion on one finger; this was easily controlled by pressure.

Her mother stated that there was neither disease nor deformity of the hand which is now affected until her daughter was a year and a half old, when she fell into the fire and severely burnt herself; from that time the disease commenced.

The affected hand is much larger than the opposite, its temperature is higher, the subcutaneous tissue of the whole hand and fingers is occupied by dilated and tortuous veins, having the consistence and appearance of a soft subcutaneous venous nævus (Plate VI). The arteries of the fingers, hand, and forearm are greatly enlarged, their coats are thinned, and they are more tortuous than is normal in one of the patient's age. They resemble very much in their condition the vessel of an arterial nævus or aneurism by anastomosis, as it is called. As regards their distribution, I cannot detect that it is otherwise than normal, nor do they seem to be increased in number, though they are greatly enlarged, so that many arteries, normally of a small size, are very evident by their pulsation.

There is to be noticed, when the hand is lightly grasped, a purring, humming thrill, which is, I think, continuous; it is just

* Op. cit., p. 163.

like the purr of an aneurismal varix; it is, I believe, a venous phenomenon, for on compressing the hand more forcibly it disappears, and one becomes conscious of a strong arterial pulsation of a throbbing rasping kind, which can be felt anywhere in the fingers, hand, forearm, and in the lower part of the brachial artery.

On auscultation two sounds are distinguishable, the continuous purr or thrill and a very loud arterial bruit, which can be heard down to the finger-tips and some distance up the arteries of the limb.

The disease has more resemblance to the condition of aneurismal varix than to any other recognised affection. The arterial blood finds its way into the veins, so as to distend them most abnormally and to produce the characteristic purr of aneurismal varix. There is apparently no more direct communication between the arteries and veins than is furnished by a very dilated capillary system, but whatever may be the condition of these vessels they do not completely obliterate the arterial pulse, but allow of its transmission to the venous system.

In addition to the condition referred to above, the arterial trunks themselves are the seat of disease, being largely dilated in calibre and thinned in their walls.

XXXIX.—*Epitheliomatous Ulcer of the Leg, treated by Scraping. Healing of the Sore and Subsidence of Glandular Enlargement.* By T. Holmes. *Read May 12th*, 1882.

THE following case may be worthy of the attention of the Society, as showing the success of merely local measures in the case of undoubted epithelioma, one in which amputation has been frequently recommended and practised.

The patient, Charles H—, æt. 20, was admitted into St. George's Hospital on December 2, 1880, with an immense ulcerated surface on the left leg and enlarged glands in the groin. There was a history of injury, twice repeated, to the leg. No constitutional disease was present. An irregular, ragged, offensive ulcerated surface extended almost round the

whole circumference of the leg for about three inches from the ankle upwards, isolating the tendo-Achillis, which was completely exposed by the disease. The edges of the ulcer were raised and hard, its surface strongly indurated, and destitute of any healthy granulations. There was also a cluster of enlarged glands below Poupart's ligament. The appearance of the sore was decidedly that of epithelioma, and this view was confirmed by microscopical examination. A small piece was cut out from the edge of the sore (a proceeding which gave no pain) and microscopic sections of it were prepared. They show plainly the tissue of epithelioma.

On consultation, it was decided that a trial of milder measures was justifiable before recommending the amputation of the limb. Accordingly, on December 16th, the patient was brought under the influence of ether, Esmarch's bandage was applied, and all the diseased tissue was carefully scraped away with Volckmann's spoon. This was of course easy enough in other parts of the sore, but in the part which was buried out of sight behind the tendo-Achillis the removal of the diseased tissue was necessarily rather haphazard. After the scraping the whole surface was very carefully seared over with the actual cautery.

After the separation of the sloughs caused by the actual cautery, the ulcer began to assume a more healthy aspect, granulations covered and concealed the tendon, the pit beneath it filled up, the gland in the groin diminished in size, and the patient noticed that each time the sore was dressed a smaller piece of lint was required. The glands in the groin were noticed to commence to diminish more rapidly in size during the month of January. As the sore seemed sluggish in healing, a blister was applied to it occasionally and much expedited its progress. He left his bed early in February. Soon after this he had an attack of erysipelas. This seemed to hasten the healing of the wound, which was further promoted by occasional skin grafting. He left the hospital in April, 1881, with the wound nearly but not completely healed. In May he again presented himself for examination. Most of the ulcer was granulating healthily, but there was a small portion at the back part, near the tendo-Achillis, which looked suspiciously like a recurrence of epithelioma, and he was readmitted. On removing a portion of the edge, however, and examining it microscopically, no structures like those of the previous sections were seen. He soon afterwards left the hospital finally, with the ulcer nearly healed; and came up a few months afterwards

to show that he was perfectly well. Cicatrisation was then complete and the enlarged glands had disappeared.

He is now exhibited to the Society. The scar is remarkably small considering the very large size of the ulcer, and there is no trace of enlargement of the glands.

Remarks.—The chief interest in this case is its possible bearing on the treatment of epithelioma in other situations, such as the penis, where the presence of this disease in a well-marked form is always held to indicate amputation. Allowing that our diagnosis in this instance was correct (and I may say that all those who examined the microscopic sections of the diseased tissue concurred in it), the complete and permanent success of the treatment adopted would encourage a hope of similar success in such a case as epitheliomatous ulceration in the cheek, vagina, or other situation where it might be impossible to remove the disease by excision, or only possible at the cost of extensive mutilation. The case also has, I think, an important bearing on the malignancy of epithelioma, a disease which, as it doubtless often originates in local causes, there seems no reason to doubt often remains for a long time only locally malignant.

I may also possibly be allowed to add that I doubt whether the great benefits to be expected from scraping in all forms of unhealthy ulceration are quite appreciated as they ought to be by practical surgeons in general. Syphilitic, strumous, and all other forms of ulcer, in which the granulations are either unhealthy or are almost absent, are much expedited by the removal of their whole surface with the spoon until healthy tissue is reached, Esmarch's bandages being previously applied, so that the surgeon may judge of the healthiness of the exposed tissue. In a case such as the foregoing, where, from the sinuous nature of the sore, or from the assumed malignancy of the process, there is any doubt whether the whole diseased tissue can be removed by the spoon, the actual cautery should be very carefully and thoroughly applied.

XL.—*Removal of Multiple Loose Cartilages from the Knee-joint.* By T. Holmes. *Read May* 12, 1882.

THE following case, though it presents no features of absolute novelty, is interesting, as showing with what impunity the knee-joint may be opened under the present antiseptic system;

and also how extensive the formation of these "loose cartilages" may be, even in cases where there is no evidence of any great degeneration of the joint.

The patient, G. L., æt. 28, was admitted into St. George's Hospital November 9, 1881. He was a butcher, and a man of athletic frame. He thought that, twelve years before, his knee was "put out" when he was wrestling. His brother pulled it in for him with a click, and ever since the knee has become painful or swelled when he took violent exercise. About five years since he was entered for a hurdle race, but the knee became locked and stiff before the race, and he then consulted a bone-setter, who told him that there was a loose body in the joint. Since that the joint often became similarly locked, and he has been able to feel the loose bodies, and says that there are six large and two small ones. There is little swelling or thickening of the synovial membrane and the joint moves smoothly and without any crackling, but he cannot completely extend it.

November 23.—A rather free incision was made into the pouch of the synovial membrane above and to the outer side of the patella, and several of the cartilages at once escaped, but the others had to be cleared out with the fingers and lithotomy scoop, and one (the smallest) to be picked out with dressing forceps. The man's reckoning was so far verified that there were six larger bodies, but only one small one could be found. The operation was performed under the spray. The wound was united with silver sutures, the limb put on a splint, carefully bandaged and enveloped in the usual carbolic gauze dressing. He had a restless night, and was sick from the anæsthetic, but had no fever or pain whatever, and only complained of the confinement to bed.

On December 2 the splint and dressings were removed and the man allowed to get up, as the wound was completely united. This was, however, followed by a slight attack of synovitis, which yielded in a few days to renewed rest and the application of cold by means of Leiter's tubes. He was discharged on December 16, apparently quite well, but with a good deal of stiffness of the joint still remaining.

I saw him on May 11; he was in excellent health and could use the limb freely. There is no remaining stiffness of the joint, but he cannot completely extend it. There is still a loose cartilage of small size to be felt, and he says that there are two of them. They give him very little annoyance at present.

XLI.—*Case of Cerebro-spinal Syphilis.* By JULIUS ALTHAUS, M.D. *Read May* 12, 1882.

L. J., single, æt. 37, an architect, was admitted, under my care, into the hospital for epilepsy and paralysis, in December, 1881. He had always been in good health with the exception of an attack of smallpox which he had had in 1863, but from which he recovered without any consecutive illness. There was no history of neurotic affections in his family. In 1873 he had a chancre, which was soon followed by roseola, sore throat, and ulceration of the tongue. These symptoms, which were of a severe character, lasted for about twelve months, but gradually yielded to the use of mercury and Zittmann's decoction, and the patient now remained in apparently good health until January, 1880, when he was seized with headache of extreme violence, which occupied the centre of the head, and came on three or four times in the course of the twenty-four hours, lasting for about half an hour each time, and generally occurring at periodical intervals. The pain was so severe as nearly to drive him frantic. He was treated with quinine, but without any good result, and the pain continued with the same violence for about six months. In July, 1880, he had a paralytic stroke, in which he fell down speechless and lost the use of the right side. He did not lose his consciousness in the attack, and there was no incontinence of the excretions, and he has never had any more headache since. He recovered his language in ten days, but the paralysis of the side remained. After a time he was seized with severe pain in the spine, for the relief of which as many as five hypodermic injections of morphia were administered daily. He was now treated with mercurial inunction over the spine. In November of the same year he began to lose power in the left leg; this, however, came on more gradually, and the bladder and bowels also gradually lost their tone, and eventually became paralysed, so that the use of the catheter and of medicinal enemata became necessary. On one occasion he had symptoms of complete obstruction of the bowels, which, however, yielded to the use of aloes and belladonna. The bladder was at this time so irritable that the patient had to introduce the catheter, which he did with the left hand, every hour by day and by night. The action of the bowels gradually improved, so that they were moved by ordinary enemata, and the irrita-

circumstance that the headache ceased suddenly after the paralytic stroke, never to return, induces me to believe that it was really owing to syphilitic endarteritis, which was going on all the time the headache lasted, and which ultimately led to thrombosis of the left middle cerebral artery, with consecutive softening of brain tissue.

An interesting point to determine is, what portion of the left Sylvian artery became plugged? Was it its so-called central system which supplies the structure of the corpus striatum and internal capsule? or was it its cortical system, which is formed after the vessel has entered the fissure of Sylvius, and which supplies the three frontal convolutions, and the strictly motor convolutions of the grey surface, viz. the ascending frontal, the ascending parietal, and the paracentral lobule? In other words, was the paralysis owing to disease of the corpus striatum or of the cineritious substance of the hemispheres? The whole progress of the case seems to point to the conclusion that the central ganglia were unaffected, and that the paralysis was caused by ischæmic softening of the convolutions bordering the fissure of Rolando. If the main branch, and therefore the central system of the Sylvian artery, had been blocked, we should no doubt have had permanent loss of language; while in the present case the speech was only lost for ten days and then returned, being now perfectly normal. This seems to show that there was in the first instance plugging of the external frontal artery which supplies Broca's convolution, and of the anterior and posterior parietal arteries which supply the Rolandic convolutions; that the external frontal became pervious again, so as to be able to nourish Broca's convolution, while the anterior and posterior parietal arteries remained permanently blocked, and the Rolandic convolutions therefore became permanently softened. It might be said that the anterior cerebral artery, which gives off a small branch to the two inferior frontal convolutions, may have undertaken to nourish the whole of Broca's convolution; but this supposition is somewhat improbable from the fact that in the overwhelming majority of cases, where aphasia results from plugging of the main branch of the middle cerebral, there is either no, or very imperfect, recovery of language, which is not to be wondered at, seeing the extreme tenuity of the vessel which branches off from the anterior cerebral. It is also well known that cases of aphasia occur without hemiplegia from localised thrombosis of the external frontal artery and consecutive localised softening of Broca's convolution, and that

in these cases the small vessel coming from the anterior cerebral is of very little, if any, use. I think, therefore, that we are justified in assuming that the endarteritis which gave rise to the violent headaches, and which ultimately led to plugging of vessels and softening of brain matter, was confined to the cortical system of the middle cerebral, and that the central ganglia are healthy in the present case.

Another point of interest which has to be considered is whether the paralysis of the left leg, which came on about five months after the right hemiplegia had been established, is of cerebral or spinal origin? Was there a fresh attack of arterial thrombosis in the right cerebral hemisphere, or was the paralysis owing to disease in the lumbar enlargement of the cord? It seems to me that all the symptoms point to the latter conclusion. We know that destructive lesions of the motor centres, whether affecting the conducting paths of motor power in the internal capsule or the central convolutions of the hemispheres are habitually followed by a peculiar form of chronic myelitis leading to sclerosis of that portion of the lateral columns of the cord which is known as the pyramidal strand, with wasting of nerve-tubes and overgrowth of interstitial connective tissue. The occurrence of this form of sclerosis does not so much depend upon the nature of the primary lesion as upon its seat and extent. Thus, it may occur, not only after softening, as in the presence instance, but also after hæmorrhage and encephalitis; it may occur, not only after destructive lesions of the central convolutions, but also of the white internal capsule and the centrum ovale, more especially where the foot of the corona radiata is implicated; but it will not occur after lesions of the grey nuclei of the corpus striatum, or from superficial disease of the central convolutions, such as occur in meningitis. The sclerosed condition affects the entire pyramidal strand below the seat of the lesion, and would, could we see it, in the present case no doubt be found to begin at the foot of the central convolutions, proceed from thence through a certain area of the internal capsule, the crus, pons, medulla oblongata, and spinal cord down to the lumbar enlargement. The clinical symptoms of this condition are muscular rigidity and increased tendon-reflexes, which were such a marked feature in the present instance.

In the majority of cases, this secondary sclerosis is confined to the suffering side, that is to say, it affects the side of the brain which is opposite to the paralysis, and crosses over in the medulla to that side of the cord which is on the same side

as the paralysis, being clearly limited to a definite portion of the lateral column, and affecting neither the grey matter nor other portions of the cord. In the present instance, however, the disease has not only crossed over to the pyramidal strand of the opposite side of the cord in the lumbar enlargement, but has also, in doing so, invaded other paths in the cord which are habitually spared. By assuming this, we get an easy explanation of the symptoms of paralysis in the left leg and the bladder and the bowels, which occurred about the same time, viz. about five months after the primary lesion, and when the sclerosis in the right side of the cord might be assumed to have become fully developed. The paralysis in the left leg I do not believe to be of cerebral origin, because it came on in a different fashion, and was not nearly as complete as that in the right leg; and although there are paths in the brain which have a definite relation to the bladder and the bowels, yet they are situated in a different part of the organ, viz. the corpora restiformia of the medulla oblongata. Moreover, it is almost certain that if this lesion were cerebral the left arm would also have suffered. I think, then, that the sclerosis, after having reached the right side of the lumbar enlargement of the cord, spread by a sort of infection of certain fibres through the anterior commissure to the left side of the organ. It is well known that there is not only a first decussation of fibres in the anterior pyramids of the medulla oblongata, but that there is likewise a second decussation much further down in different portions of the cord itself, where fibres cross over from the right to the left side, and *vice versâ*, through the anterior commissure, without passing through the ganglionic cells of the grey centre. This second decussation has been anatomically studied by Schiefferdecker, and it accounts physiologically for the fact that section of one lateral half of the cord in animals causes paralysis on the same side, and some degree of paresis on the opposite side. It is no doubt along the course of these fibres that the sclerosis spread from the right to the left side of the lumbar enlargement of the cord, and also affected the paths for the conduction of motor impulses to the bowels, bladder, and sexual organs. As these are generally believed to be situated in the posterior columns, it appears singular that the different forms of sensation should have been entirely unaffected in both lower extremities. Nevertheless it cannot be doubtful that the affection of the viscera just mentioned must have been owing to spinal, and not to cerebral disease, and that it was owing to sclerosis of part of the lumbar enlargement.

XLII.—*On a Case of Post-hemiplegic Disorder of Movement.* By WILLIAM M. ORD, M.D. *Read May* 12, 1882.

M. A. J., æt. 53, female, house-servant, was admitted to St. Thomas's Hospital on the 25th May, 1881, suffering from right hemiplegia. It was stated that her father had died of consumption; that her mother had died insane; and that she, the patient, had one sister living who had been thirty years in a lunatic asylum. The patient herself, a small, shrivelled woman, was stated to have enjoyed fairly good health. She had not been known to be seriously ill at any time, but had had occasionally swelling of the legs, face, and particularly of the eyelids.

The night before her admission she suddenly lost all voluntary power over the right arm and leg, without any affection of consciousness. When first seen, she was suffering from complete loss of power in the right leg and arm, with no facial paralysis, but with some increase of size in the right pupil as compared with the left. Sensation was greatly impaired in the leg, less in the arm, and was defective on the right side of the face. The bladder was over-distended and was relieved by catheter. The urine drawn off contained nothing abnormal save an excess of phosphates. The action of the heart was laboured, the second sound was much accentuated at the base, and the arteries were hard. The indications yielded by the viscera were otherwise normal. Two days after admission the patient had become apathetic, spoke imperfectly, and manifested distinct aphasia; the face became paralysed on the right side, and the bladder, which after the use of the catheter had regained the power of contraction, lost it. The eyes being examined by the ophthalmoscope presented the signs of albuminuric retinitis, but albumen was only occasionally found in the urine. After remaining in the above-described state for three days, she began to amend. Movement and sensation returned, first in the leg then in the arm, and by the beginning of September she was able to walk about and assist in the lighter work of the ward. She was discharged on the 30th September, almost well.

But when readmitted, on the 17th of February, 1882, she said that at the time of her discharge two fingers of the right hand used to "work." She cannot say which fingers began to

move in this way. The "working" or involuntary movements made very little advance till the beginning of January, when they spread over the whole of the right arm, and were associated with pain in the right shoulder, due, as she believes, to the involuntary movement.

On the 20th February, 1882, she appeared to be fairly nourished, and said that she felt well, so far as her general health was concerned. She could not walk well on account of stiffness in the right leg, and the right arm was continually moving. There was some imperfection of movement of the right half of the mouth, but no other facial paralysis. The tongue deviated to the left; and the right pupil was the larger. The movements of the right arm and the general conditions are recorded as follows:—"At present, when she is sitting with the right hand resting on her lap, the fingers are all extended and are alternately moved together and expanded, as in the act of playing on the pianoforte; the palm of the hand is pressed with a rocking movement against the lap, the wrist rotating in about a fifth of a circle; the elbow is sometimes quiet, sometimes adducted and abducted gently; so also of the shoulder, which is raised and depressed. These movements are perfectly regular and recur at the rate of about 140 times in the minute. When the hand is moved voluntarily from the lap, the movements become more extensive. If a book is presented to her she brings her hand to it with a double series of pendulum movements, small in the hand and wrist, large in the whole limb, which sways several inches alternately on each side of the intended line of movement. Ultimately she seizes the book, and holds it firmly while the arm continues its vibrations. When the arm is abducted from the side the vibrations increase in extent and force, moving as though it were a pump-handle vigorously worked, shaking and swaying her whole body. The movements cease during sleep, and are sometimes almost lost when she is sitting or lying very quiet, with the hand and arm completely supported. They also cease when the arm and forearm are firmly grasped. Sometimes, on waking, she finds the arm stiff for a time. There is no loss of sensation, and no disorder of sensation. The patellar tendon-reflex is much exaggerated on the right side, not on the left. The arm-reflexes can be freely elicited, but not ankle-clonus. Her mind and speech are clear, but she walks with a limp because of the stiffness of the right leg, which, however, does not present any of the rhythmical movements seen in the arm. The superficial reflexes are normal, except that the

plantar is increased on the right side. The eyes present no no abnormity."

Subsequently, while under observation, she experienced twitching of the face and jumping of the leg, but under the steady use of the constant current, applied from the occiput to the hand, the movements decreased and her strength improved. There was no albuminuria or change in the optic discs at any part of her second treatment. The movements appear to be neither those of athetosis, nor chorea, nor paralysis agitans, but to be more affine to those of disseminated or descending sclerosis: 1st. They are rapid and rhythmical. 2nd. They cease during sleep, and during absolute rest. 3rd. They are increased by voluntary movement in some proportion to the effort made, and are still rhythmical. 4th. They are associated with occasional rigidities, and with increase of tendon-reflexes. I cannot, on the first head, admit that either the term athetosis or post-hemiplegic hemichorea would be applicable; on the third head, that the movements belong to paralysis agitans; and therefore, while describing the case, and excluding these terms, refrain from using any more definite expression than that which heads the account of the case, an expression already used by Dr. Gowers.

XLIII.—*Cases of Rheumatic Fever treated with Iodide of Potassium and Sulphate of Quinine.* By Edward Headlam Greenhow, M.D. *Read May* 26, 1882.

THE present communication is founded upon forty-three cases of rheumatic fever which were under my care in the Middlesex Hospital between the beginning of 1875 and the summer of 1876. Like the groups of cases treated with salicin and salicylate of soda, communicated to the Society last year and printed in the thirteenth volume of our 'Transactions,' they were all treated as nearly as possible in an identical manner, the medicines being administered in the same form in each of the cases. The iodide of potassium was prescribed in a simple solution containing five grains each of iodide of potassium and of carbonate of ammonia, and the sulphate of quinine in that of pill consisting of two grains of

quinine and three of extract of henbane. In the reports of cases they will be referred to briefly as the treatment with iodide of potassium and quinine. The patients were kept in bed and restricted to milk diet and beef tea until the pains and fever had entirely abated; the painful joints were closely enveloped in cotton wool, and whenever any cardiac complication was present a mixture of equal parts of extract of belladonna and ointment of iodide of potassium was applied over the præcordia. Sedatives, aperients, and stimulants were only administered when they appeared indispensable, and always as sparingly as possible. No remarkable physiological effects having been observed to follow the treatment, the reports of the cases have been shortened as much as possible, and only comprise the more important facts.

Case 1.—E. H., æt. 27, labourer, admitted February 16, 1875. Father suffers from rheumatism. Previous health good. After exposure to cold and wet was attacked, about February 2, with pains in the knees and feet, and subsequently in other joints.

State on admission.—Pulse 96, feeble, temp. 102·2°. Skin moist, tongue creamy, first sound of heart rough. Both knees and ankles swollen, hot, and painful. Take iodide of potassium and quinine three times a day. 9 P.M.—Pulse 108, temp. 102·4°.

February 17.—9 A.M.—Pulse 102, temp. 102·8°. Profuse sour sweating; left hand and elbow hot, swollen, and tender; systolic murmur audible over præcordia, but loudest at the base of heart. 9 P.M.—Pulse 105, temp. 101·8°.

The temperature and pulse gradually subsided and became normal on February 22. The pains entirely ceased on February 24. The cardiac murmur was still audible on March 1.

Discharged convalescent on March 9.

Case 2.—J. M., æt. 19, tailor, admitted March 3, 1875. Had rheumatic fever last spring. Present illness commenced four days ago with pains in the feet, which afterwards extended to the knees and hips.

State on admission.—Pulse 96, temp. 100·3°; skin moist; knees and ankles swollen, red, and painful; rough friction over præcordia and a systolic murmur at base of heart. Take iodide of potassium and quinine every eight hours. 9 P.M.—Pulse 90, temp. 102·6°.

March 4.—9 A.M.—Pulse 74, temp. 100°. Complains much

of the severity of the pains. Continue, and take ten grains of Dover's powder at night. 9 P.M.—Pulse 86, temp. 100·3°.

March 5.—9 A.M.—Sweating profusely; pulse 72, temp. 99°. 9 P.M.—Pulse 84, temp. 100°.

March 6.—9 A.M.—Pulse 54, temp. 98·4°. First cardiac sound almost inaudible, its place being occupied by an extremely feeble bellows murmur. Continue medicines and take two drachms of brandy every three hours.

The temperature did not again exceed the normal standard, and was for some days decidedly subnormal; the pulse also remained slow. The pains entirely subsided on March 7. The first sound of the heart continued faint for some days but the bellows murmur soon ceased.

Discharged convalescent on March 23.

CASE 3.—E. T., æt. 24, housewife, admitted March 9, 1875. A history of rheumatism in family. Previous health good. Illness commenced on 5th inst. with wandering pains in the joints.

State on admission.—Pulse 108, temp. 99·8°; left knee swollen, hot, and tender; cantering rhythm of the heart; pericardial friction near mid-sternum. 9 P.M.—Pulse 142, temp. 101·8°; in much pain; tremors.

March 10.—9 A.M.—Pulse 138, temp. 100·8°; sweating profusely. Take iodide of potassium and quinine every six hours, and ten grains of Dover's powder at bedtime. 9 P.M.—Pulse 140, temp. 101°.

March 11.—9 A.M.—Pulse 144, temp. 102; profuse sour sweating; cantering rhythm of heart, and loud pericardial friction. 9 P.M.—Pulse 120, temp. 101·6°.

March 12.—9 A.M.—Pulse 142, temp. 100·4°

From this day temperature and pulse gradually fell, and the former became normal on March 16. The pains also disappeared entirely with the fever, but sweating continued some days longer. Cantering rhythm of heart and pericardial friction were noted on March 20.

Discharged convalescent on April 1.

CASE 4.—H. R., æt. 23, draper's assistant, admitted March 26, 1875. Father and brother have suffered from rheumatism; patient had rheumatic fever ten years ago. Present illness commenced a few days ago with pains in the knees and ankles.

State on admission.—Pulse 102, temp. 99·6°. Complains

of pains in arms and shoulders; both knees and ankles hot, swollen, and painful; pericardial friction over præcordia. Take iodide of potassium and quinine every eight hours. 9 P.M.—Pulse 102, temp. 101°.

March 27.—8 A.M.—Pulse 90, temp. 99·8°; rather easier. 9 P.M.—Pulse 84, temp. 99°.

March 28.—9 A.M.—Pulse 90, temp. 98·4°; is free from pain; pericardial friction less loud. 9 P.M.—Pulse 72, temp. 99·8°.

The pulse and temperature did not again exceed the normal standard, and the pains did not recur, but pericardial friction was audible as late as April 4.

Discharged well on April 13.

CASE 5.—M. T., æt. 9, admitted April 8, 1875. Had rheumatic fever at the age of seven years. Present illness commenced seven days ago.

State on admission.—Pulse 120, temp. 99·8°; right hand and knee swollen, hot, and tender; systolic murmur at apex of heart; pericardial friction at base. Take one grain of sulphate of quinine and three of iodide of potassium every eight hours. 9 P.M.—Pulse 138, temp. 102·6°.

April 9.—9 A.M.—Pulse 102, temp. 101·8°. 9 P.M.—Pulse 120, temp. 101·2°.

April 10.—9 A.M.—Pulse 126, temp. 101·6°. 9 P.M.—Pulse 120, temp. 102·4°.

April 11.—9 A.M.—Pulse 108, temp. 100°; pain, swelling, and heat of right knee and left hand; cantering rhythm of heart. 9 P.M.—Pulse 120, temp. 100·4°.

April 12.—9 A.M.—Pulse 100, temp. 99·4°. 9 P.M.—Pulse 108, temp. 100·2°.

The temperature and pulse now became normal. On April 20 the patient was allowed to sit up and the medicines were discontinued. On April 30 rheumatic pains and profuse sour sweating recurred, the pulse rose to 120, and the temperature to 100·8°. The patient was sent to bed and the medicines were resumed. On May 4, at 9 P.M., the pulse was 114 and the temperature 98·9°, and next day the pains had altogether ceased, but the systolic murmur at the apex of the heart remained.

Discharged convalescent on May 19.

CASE 6.—J. F., æt. 36, drayman, admitted April 20, 1875. Previous health good. Present illness commenced on 17th inst. with pains in the right arm, soon extending to other joints.

State on admission.—Pulse 116, temp. 103·4°; profuse sour sweating; hand and knees swollen, red, hot, and painful; loud pericardial friction over præcordia; tongue and hands tremulous; urine sp. gr. 1025, albumen a trace. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 142, temp. 103°.

April 21.—9 A.M.—Pulse 90, temp. 102·4°. 9 P.M.—Pulse 96, temp. 101·6°.

April 22.—9 A.M.—Pulse 96, temp. 100·6°; pain in shoulders; swelling, heat, and tenderness of left hand and knee; profuse sour sweating; pericardial friction continues. 9 P.M.—Pulse 72, temp. 100·6°.

From this date there was continuous improvement. The temperature fell below 100° on April 26, the pains also abated, and on April 28 both the fever and pains ceased altogether, but sour sweating continued for several days longer. A systolic apex murmur was noted on May 11, but no pericardial friction had been heard for several days.

Discharged convalescent on May 18.

CASE 7.—J. F., æt. 41, waiter, admitted June 1st, 1875. Has already twice suffered from rheumatic fever. Present attack set in with pains in the right leg and both feet.

State on admission.—Pulse 108, temp. 101·2°; right knee and left ankle, swollen, red, hot, and tender. First sound of heart rough. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 88, temp. 101°.

June 2.—9 A.M.—Pulse 80, temp. 100·2°. Profuse sweating. 9 P.M.—Pulse 98, temp. 100·5°.

June 3.—9 A.M.—Pulse 96, temp. 99·2°. Right knee less painful; left knee slightly swollen, painful, and hot; left ankle less painful and swollen; sweats much. 9 P.M.—Pulse 80, temp. 98·9°.

From this date the temperature was normal, or slightly above the normal standard; the pulse ranged from 70 to 86; but the pains and sour sweating continued for some days longer, and did not entirely abate until June 16.

Discharged well on June 23.

CASE 8.—I. J., æt. 27, policeman, admitted June 4, 1875. One brother has had rheumatic fever. Previous health good. Illness commenced on May 26, with catarrh and pains in the knees and feet.

State on admission.—Pulse 96, temp. 100·6°. Left knee

swollen, hot and painful. Heart sounds muffled; area of præcordial dulness rather large.

June 5.—9 A.M.—Pulse 102, temp. 103°; tongue dry and furred; both hands swollen, red, and very tender; heart sounds clean; sweating very freely. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 90, temp. 102·9°.

June 6th.—9 A.M.—Pulse 90, temp. 101·7°; slept badly; both wrists still very painful; knees and ankles much easier; profuse sweating; bowels confined. 9 P.M.—Pulse 104, temp. 102·4°.

June 7.—9 A.M.—Pulse 100, temp. 100·9°; wrists less painful; very free sweating continues. 9 P.M.—Pulse 100, temp. 100·4°.

June 8.—9 A.M.—Pulse 108, temp. 100°; joints much easier; still sweating freely; tongue cleaner. 9 P.M.—Pulse 108, temp. 101·2°.

June 9.—9 A.M.—Pulse 100, temp. 100·4°; joints less painful; sweating continues. 9 P.M.—Pulse 96, temp. 100·5°.

June 10.—9 A.M.—Pulse 80, temp. 101°. 9 P.M.—Pulse 72, temp. 100°.

June 11.—9 A.M.—Pulse 80, temp. 98·7°; free from pain.

There was no return of pains, the temperature ranged from 98·5° to 99·6°, and the pulse from 70 to 88.

Discharged convalescent on July 6.

CASE 9.—J. H., æt. 22, porter, admitted June 23, 1875. One sister has had rheumatic fever. Previous health good. Present illness commenced about June 16, with stiffness in the knees, followed, on the 20th, by pains in the feet.

State on admission.—Pulse 108, temp. 102°; urine sp. gr. 1028, very acid, a good trace of albumen, no blood; pulse full and bounding; left great toe and both ankles swollen, red, hot, and painful; left knee swollen, hot, and distended by synovial effusion; right wrist also swollen, red, hot, and tender; profuse sour sweating; systolic murmur at apex of heart and distinct pericardial friction at base; double murmur heard at point of scapula. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 108, temp. 102°.

June 24.—9 A.M.—Pulse 105, temp. 101·8°; complains of pain in both shoulders and left elbow; slept badly; feet and knee less painful; more pain in right wrist; pericardial friction continues; heart sounds clean behind; area of cardiac dulness increased; sour sweating. 9 P.M.—Pulse 102, temp. 101·2°.

June 25—9 A.M.—Pulse 108, temp. 101·5°; left wrist hot,

swollen, and painful; right wrist better; no pain in knees; still profuse sour sweating. 9 P.M.—Pulse 104, temp. 102·4°.

June 26.—9 A.M.—Pulse 104, temp. 102·4°; pain in joints less severe; complains of pain and tightness across the chest; urine sp. gr. 1029, albumen a trace; pericardial friction continues; area of præcordial dulness increased in a transverse direction. 9 P.M.—Pulse 112, temp. 101·1°.

June 27.—9 A.M.—Pulse 108, temp. 100·7°; pulse very compressible; pain in right shoulder; very loud grating friction over præcordia. Continue medicines; take three drachms of brandy every three hours. 9 P.M.—Pulse 102, temp. 100·3°.

June 28.—9 A.M.—Pulse 100, temp. 99·7°; pulse much improved in force; less pain in joints, but still has pains in shoulders and arms; slept well; urine sp. gr. 1032, very acid, crowded with lithates, no albumen. 9 P.M.—Pulse 88, temp. 99·5°.

June 29.—9 A.M.—Pulse 88, temp. 98·7°; tongue cleaning; slight pain in shoulder excepted, is now quite free from pain; very profuse sour sweating; urine free from albumen; friction still heard at heart. 9 P.M.—Pulse 80, temp. 98·7°.

The temperature now ranged from 97·6° to 99°, and the pulse from 76 to 88. Slight pains were experienced in the joints occasionally for two or three days, and the sweating did not cease until later. The urine was normal and free from albumen. On July 8 the temperature rose for a few hours to 100·4°, but subsided again on the following day.

Discharged convalescent on July 30.

Case 10.—J. A., æt. 30, brass finisher, admitted June 24, 1875. Had rheumatic fever twelve years ago. Present illness commenced with a cold, caused by getting his feet wet about a fortnight ago, since which time he has been suffering from pains in the ankles and hips. Has been a free drinker.

State on admission.—Pulse 112, temp. 102·7°; both ankles and left knee hot, swollen, red, and painful; systolic murmur at apex of heart; urine sp. gr. 1028, normal.

June 25.—9 A.M.—Pulse 104, temperature 101·7°; pains in joints as yesterday, but the right knee is affected to-day; profuse sour sweating; friction just inside the left nipple. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 104, temp. 103·3°; sweating very profusely.

June 26.—9 A.M.—Pulse 103, temp. 102·6°; pains in ankles

easier; left shoulder painful; left hand swollen, hot, and tender. 9 P.M.—Pulse 108, temp. 102·2°.

June 27.—9 A.M.—Pulse 112, temp. 102·9°; still has much pain in left hand; more pain in shoulders and elbows; friction at base of heart continues; sweating freely. 9 P.M.—Pulse 108, temp. 102°; sweating.

June 28.—9 A.M.—Pulse 114, temp. 101·9°; pains in elbows, hands, shoulders, and right knee; ankles and left knee better; urine sp. gr. 1030, crowded with lithates, a good trace of albumen; body covered with red miliary rash; pericardial friction. 9 P.M.—Pulse 105, temp. 102·2°.

June 29.—9 A.M.—Pulse 108, temp. 102·5°; both wrists, elbows, and shoulders are still very painful and swollen; sweating profusely; urine sp. gr. 1030, very acid, albumen a good trace, no blood. Continue the pills with quinine, and take four grains of iodide of potassium in effervescing medicine every six hours. 9 P.M.—Pulse 108, temp. 102·7°; sweating freely.

June 30.—9 A.M.—Pulse 100, temp. 100·8°; both wrists, hands, and elbows still painful; heart sounds clean; not sweating so freely. 9 P.M.—Pulse 98, temp. 102·5°.

July 1.—9 A.M.—Pulse 96, temp. 101·8°; urine free from albumen; no pain in wrists, slight pain in shoulders. 9 P.M.—Pulse 96, temp. 102°.

July 2.—9 A.M.—Pulse 88, temp. 100·1°; still has pain in right wrist, hand, and shoulder. 9 P.M.—Pulse 100, temp. 101·3°.

July 3.—9 A.M.—Pulse 80, temp. 99·9°; pain only in left shoulder and hip. 9 P.M.—Pulse 84; temp. 100·9°.

July 4.—9 A.M.—Pulse 74, temp. 99·2°; no pains in joints. 9 P.M.—Pulse 75, temp. 99·8°.

July 5.—9 A.M.—Pulse 80, temp. 99·2°; no pain in joints; tongue cleaning; urine normal.

The pains did not recur, and the fever did not relapse; the urine also remained free from albumen.

Discharged convalescent on July 28.

CASE 11.—T. B., æt. 15, bottle washer, admitted June 25, 1875. Previous health good; got wet through on the 10th inst., and was attacked with pains in the ankles and knees, which soon extended to other joints.

State on admission.—Pulse 143, temp. 102·8°; both knees and left ankle swollen, hot, and painful.

June 26.—9 A.M.—Pulse 136; temp. 100·2°; pain in right hip, as well as in joints affected yesterday; heart sounds

normal. Take iodide of potassium and quinine every eight hours. 9 P.M.—Pulse 108, temp. 100·3°.

June 27.—9 A.M.—Pulse 112, temp. 98·8°; pain in right hip more severe; no pain elsewhere. 9 P.M.—Pulse 96, temp. 98·9°.

The temperature from this day kept at or under the normal standard, and the pulse about 70. The pains speedily subsided, and the medicine was discontinued early in July.

Discharged convalescent on July 13.

CASE 12.—W. S., æt. 29, policeman, admitted July 14, 1875. Previous health good. Whilst on duty, at Aldershot, caught cold from sleeping under canvas.

State on admission.—Pulse 116, temp. 103·5°; both knees and ankles hot, red, swollen, and painful; pain also in right shoulder; tongue furred; sweating freely.

July 15.—9 A.M.—Pulse 120, temp. 103·4°; urine sp. gr. 1024, acid, albumen a slight trace; bathed in sour sweat; joints very painful; knees much swollen with synovial effusion; heart sounds clean. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 104, temp. 102·7°.

July 16.—9 A.M.—Pulse 100, temp. 103·1°; copious sour sweating; pains unchanged. 9 P.M.—Pulse 84, temp. 103°.

July 17.—9 A.M.—Pulse 88, temp. 101·8°; pain, heat, and swelling of right wrist and shoulder; still pains in knees and ankles, but less severe. 9 P.M.—Pulse 84, temp. 101·8°.

July 18.—9 A.M.—Pulse 88, temp. 102°; wandered during night; pains rather easier; still sweating freely. 9 P.M.—Pulse 84, temp. 101·8°.

July 19.—9 A.M.—Pulse 80, temp. 101·7°; no pain in ankles, but pains in both shoulders; urine sp. gr. 1025, acid, albumen a distinct trace. 9 P.M.—Pulse 80, temp. 101·7°.

July 20.—9 A.M.—Pulse 86, temp. 102°; left wrist still painful; sweating continues profuse; first cardiac sound rough at the apex. 9 P.M.—Pulse 90, temp. 101·2°

July 21.—9 A.M.—Pulse 90, temp. 100·9°; both shoulders painful; right wrist hot, swollen, and tender. 9 P.M.—Pulse 88, temp. 101·3°.

July 22.—9 A.M.—Pulse 88, temp. 101·7°; chest and back covered with red miliary rash; heart sounds clean. 9 P.M.—Pulse 96, temp. 101·6°.

July 23.—9 A.M.—Pulse 98, temp. 101·8°; sweating very freely. 9 P.M.—Pulse 98, temp. 101·7°.

July 24.—9 A.M.—Pulse 96, temp. 101·8°; right shoulder

and hand still extremely painful and tender; sour sweating. 9 P.M.—Pulse 96, temp. 101·5°.

July 25.—9 A.M.—Pulse 90, temp. 101·8°; still pain in right shoulder and wrist, less in left shoulder. Complains of tenderness in the left hand and wrist. 9 P.M.—Pulse 92, temp. 102·6°.

July 26.—9 A.M.—Pulse 90, temp. 101·8°; has more pain in both knees and wrists; sweating; urine very acid, free from albumen. 9 P.M.—Pulse 96, temperature 102·4°.

July 27.—9 A.M.—Pulse 102, temp. 101·9°. Complains of pain in both feet, which are studded with large vesicles of red miliary rash. 9 P.M.—Pulse 100, temp. 102·4°.

July 28.—9 A.M.—Pulse 100, temp. 102·1°; sweating; complains of constriction across chest, increased by full inspiration; slight roughness of both cardiac sounds. 9 P.M.—Pulse 104, temp. 102·5°.

July 29.—9 A.M.—Pulse 108, temp. 102·3°; no pain in hands, wrists, or ankles; slight stiffness in shoulders; much less sweating; urine normal. 9 P.M.—Pulse 102, temp. 102·2°.

July 30.—9. A.M.—Pulse 88, temp. 101·5°. 9 P.M.—Pulse 88, temp. 100·1°.

July 31.—9 A.M.—Pulse 84, temp. 100·9°. 9 P.M.—Pulse 88, temp. 100·5°.

August 1.—9 A.M.—Pulse 84, temp. 100·4°; still some pain in shoulders and right arm. 9 P.M.—Pulse 83, temp. 100·4°.

August. 2.—9 A.M.—Pulse 80, temp. 100°. Complains of no pain, but only of stiffness in right shoulder.

There was no return of pain; the temperature ranged from 98·4° to 99·9°, the pulse from 62 to 108. More or less sweating continued for some days.

Discharged convalescent on August 30.

CASE 13.—E. N., æt. 34, dressmaker, admitted September 15, 1875. Family history of rheumatism and gout. Has already had two attacks of rheumatic fever, one in early life, the other at the age of twenty-three. Her eldest child has also had rheumatism. Present illness commenced a week since.

State on admission.—Pulse 103, temp. 102·8°; both wrists and several fingers are hot, swollen, and very painful; right knee is also swollen and painful; loud systolic murmur at apex of heart; urine sp. gr. 1014, contains a good trace of albumen; sweating freely. 9 P.M.—Pulse 104, temp. 103·1°.

September 16.—9 A.M.—Pulse 100, temp. 101·6°; right

knee and wrist still very painful. 9 P.M.—Pulse 105, temp. 103·2°.

Sept. 17.—9 A.M.—Pulse 104, temp. 102·8°; sour sweating; slept badly and wandered much; both wrists better; right knee less painful. 9 P.M.—Pulse 108, temp. 103·4°.

Sept. 18.—9 A.M.—Pulse 102, temp. 102·2°; wrists continue better; complains of pain across chest; wandered last night; cantering rhythm of heart; sweating very profusely. 9 P.M.—Pulse 104, temp. 103·5°.

Sept. 19.—9 A.M.—Pulse 100, temp. 102·8°; distinct pericardial friction over præcordia. 9 P.M.—Pulse 105, temp. 103·4°.

Sept. 20.—9 A.M.—Pulse 108, temp. 100·7°. 9 P.M.—Pulse 108, temp. 102·7°.

Sept. 21.—9 A.M.—Pulse 104, temp. 102·1°; sweating freely. Seen by Dr. Greenhow. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 104, temp. 102·8°.

Sept. 22.—9 A.M.—Pulse 106, temp. 101°; urine sp. gr. 1022, acid, albumen a trace; systolic murmur at apex of heart. 9 P.M.—Pulse 108, temp. 101.

Sept. 23.—9 A.M.—Pulse 100, temp. 99·4°; sweating freely; bowels very loose. Continue, and take four grains of subnitrate of bismuth and a quarter of a grain of opium when purged. 9 P.M.—Pulse 104, temp. 100·6°.

Sept. 24.—9 A.M.—Pulse 106, temp. 99·4°. 9 P.M.—Pulse 104, temp. 100·4°.

For several days the temperature did not exceed 100°. The sweating continued and sudamina appeared upon the trunk, but the pains ceased. The urine still showed a trace of albumen. The bowels continued rather inclined to be loose and the medicine was discontinued. On September 30 the temperature rose to 101·2°, and ranged over 100° until October 6. On October 2 there was pain and swelling in the left shoulder, wrist, and hand; the patient's aspect became anxious; the bowels were still rather loose. The urine contained a trace of albumen, sp. gr. 1026, very acid, and loaded with lithates. Other joints were affected in succession, and profuse sour sweating continued until October 6, when the temperature fell to 99·4° and did not again rise. On October 8 the joint pains entirely ceased and steady improvement set in. On October 12 the systolic murmur was still audible, both over the præcordia and also at the angle of the scapula. On October 25 the urine was quite normal.

Discharged convalescent on November 5.

Case 14.—H. F., æt. 16, carpenter, admitted Sept. 24, 1875. Mother suffers from rheumatism. Has already had three previous attacks of rheumatic fever, the last in December, 1874. Illness commenced a few days ago with pains in the lower extremities.

State on admission.—Pulse 100, temp. 102·7°. Complains of pains in both knees and right ankle; right elbow swollen, hot, and very tender, bathed in sour sweat; harsh systolic murmur at apex of heart.

Sept. 25.—9 A.M.—Pulse 104, temp. 102·4°. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 110, temp. 103°.

Sept. 26.—9 A.M.—Pulse 105, temp. 101·8°; sweating. 9 P.M.—Pulse 88, temp. 102·2°.

Sept. 27.—9 A.M.—Pulse 88, temp. 101·6°. 9 P.M.—Pulse 90, temp. 101·8°.

Sept. 28.—9 A.M.—Pulse 90, temp. 100·4°; no pain in joints; bowels loose. 9 P.M.—Pulse 98, temp. 100°.

Sept. 29.—9 A.M—Pulse 82, temp. 100·2°; sweating. 9 P.M. —Pulse 84, temp. 99·8°.

The temperature soon became quite normal, and the pulse ranged from 74 to 90. The cardiac murmur was still very distinct when discharged to the convalescent hospital at Walton-on-Thames on October 19.

Case 15.—E. F., æt. 50, servant, admitted September 30, 1875. Health good until two years ago, when she had rheumatic fever, caused by sleeping in a damp bed, and was three months ill. Has again been suffering from rheumatic pains since the 25th inst. Has been taking pills prescribed by a chemist, which have made her very ill. Was brought to the hospital in a state of collapse, with cold extremities and irregular pulse. She recovered very slowly from this condition, and had no appreciable symptoms of rheumatism until October 6, on which day the temperature, previously subnormal, rose to 99·3°, and she experienced wandering pains in several joints; pnlse 68, irregular.

Oct. 7.—9 A.M.—Pulse 82, weak, irregular, and intermittent; temp. 100·2°; pain, swelling, and heat of right knee and elbow; pain in left hip and knee. Take iodide of potassium, with five grains of citrate of iron, every eight hours. Continue brandy three ounces daily.

Oct. 8.—9 A.M.—Pulse 96, temp. 100·1°; left knee swollen and very hot and painful. 9 P.M.—Pulse 102, temp. 101·7°.

Oct. 9.—9 A.M.—Pulse 106, temp. 102·3°; right wrist, hand, and elbow swollen, hot, and tender. 9 P.M.—Pulse 96, temp. 101·4°.

Oct. 10.—9 A.M.—Pulse 106, temp. 101·4°; increased tenderness of right knee; profuse sour sweating, 9 P.M.—Pulse 104, temp. 101·6°.

Oct. 11.—9 A.M.—Pulse 104, temp. 101·5°. Continue the iodide of potassium and iron, and take the quinine pill every eight hours.

Oct. 12.—9 A.M.—Pulse 105, temp 100·4°; sweating freely. 9 P.M.—Pulse 98, temp. 101·2°.

Oct. 13.—9 A.M.—Pulse 98, temp. 99·9°; slight systolic murmur, audible to-day for the first time, at apex of heart. 9 P.M.—Pulse 98, temp. 100·6°.

Oct. 14.—9 A.M.—Pulse 98, temp. 102·4°; sour sweating; swelling, redness, heat, and pain in joints of left hand; knees and right wrist better.

Oct. 15.—9 A.M.—Pulse 96, temp. 101·3°; sweating.

From this day the temperature ranged from 100·3° to 99·2°, and the pulse from 96 to 80. The pains slowly ceased, and some swelling, heat, and pain of several joints continued until the end of October.

Discharged quite convalescent on November 22.

CASE 16.—J. C., æt. 22, cabinet maker, admitted October 4, 1875. Previous health good; has been working in damp boots, and after a warm bath felt chilly and had pains in the knees and ankles.

State on admission.—Pulse 94, temp. 100·3°; both knees and right ankle hot, swollen, red, and very painful; ball of right great toe hot, swollen, and painful; sweating freely. 9 P.M.—Pulse 98, temp. 102·6°.

Oct. 5.—9 A.M.—Pulse 96, temp. 100·5°; right elbow hot, swollen, and painful; much redness about the malleoli of both ankles; right knee much swollen with synovial effusion; sour sweating. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 100, temp. 101·8°.

Oct. 6.—9 A.M.—Pulse 88, temp. 100·2°. 9 P.M.—Pulse 92, temp. 99·4°.

Oct. 7.—9 A.M.—Pulse 96, temp. 100°; sweating freely; heart sounds normal; feet still very much swollen, red, but not so painful; has had slight epistaxis. 9 P.M.—Pulse 94, temp. 99·6°.

The improvement was rapid from this time. The fever subsided, and the pains ceased on October 10.

Discharged convalescent on October 27.

Case 17.—F. M., æt. 25, book deliverer, admitted October 6, 1875. Has already had two attacks of rheumatic fever. Present illness began on the 3rd inst. with stiffness and pains in the knees and hips, which soon extended to other joints.

State on admission.—Pulse 105, temp. 101·4°; feet and knees swollen, and very painful. A rough systolic murmur at base of heart; sour sweating. 9 P.M.—Pulse 106, temp. 103°.

Oct. 7.—9 A.M.—Pulse 108, temp. 100·2°; knuckles of left hand swollen, hot, red, and painful. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 104, temp. 100·5°.

Oct. 8.—9 A.M.—Pulse 100, temp. 100°; the whole of the left hand still swollen, red, hot, and painful.

The temperature fell to the normal standard in the evening, and next day the pains had ceased, but sweating continued for a day or two longer.

Discharged quite convalescent on October 14.

Case 18.—S. A. B., æt. 21, servant, admitted October 9, 1875. Previous health good. Illness was caused by getting her feet wet.

State on admission.—Pulse 108, temp. 101°; both knees and ankles hot, swollen, red, and very painful; effusion into left knee-joint; systolic murmur over præcordia; urine sp. gr. 1028, acid, a trace of albumen.

Oct. 10.—9 A.M.—Pulse 100, temp. 102°; sweating profusely; redness and tenderness of ball of left thumb. 9 P.M.—Pulse 96, temperature 100·4°.

Oct. 11.—9 A.M.—Pulse 98, temp. 100·7°. 9 P.M.—Pulse 102, temp. 98·9°.

Oct. 12.—9 A.M.—Pulse 84, temp. 100·5°; swelling and pain of left ankle; faint pericardial friction. 9 P.M.—Pulse 98, temp. 100·8°.

Oct. 13.—9 A.M.—Pulse 88, temp. 99·9°; systolic murmur at apex of heart; pericardial friction continues. 9 P.M.—Pulse 90, temp. 99·7°.

Oct. 14.—9 A.M.—Pulse 92, temp. 100·7°. 9 P.M.—Pulse 100, temp. 98·7°.

Oct. 15.—9 A.M.—Pulse 102, temp. 101·3°; sweating profusely. 9 P.M.—Pulse 104, temp. 101·4°.

Oct. 16.—9 A.M.—Pulse 100, temp. 102°; right hand and wrist hot, swollen, and tender; systolic murmur at apex of heart, and friction over præcordia. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 108, temp. 101·8°.

Oct. 17.—9 A.M.—Pulse 110, temp. 101·8°. 9 P.M.—Pulse 100, temp. 100·1°.

Oct. 18.—9 A.M.—Pulse 100, temp. 100·6°. 9 P.M.—Pulse 108, temp. 100·9°.

Oct. 19.—9 A.M.—Pulse 100, temp. 100·8°; sweating. 9 P.M.—Pulse 104, temp. 101°

Oct. 20.—9 A.M.—Pulse 105, temp. 100·6°; faint friction at base of heart; systolic murmur at apex. 9 P.M.—Pulse 100, temp. 99°.

Oct. 21.—9 A.M.—Pulse 98, temp. 100·4°; urine normal. 9 P.M.—Pulse 96, temp. 100·3°.

Oct. 22.—9 A.M.—Pulse 96, temp. 100·2°; sweating; pain in right wrist and fingers; rough friction at base of heart, systolic murmur at apex. 9 P.M.—Pulse 120, temp. 101·7°.

Oct. 23.—9 A.M.—Pulse 104, temp. 101·8°: complains of pains in the right shoulder; percussion resonance impaired over lower two thirds of right back of thorax; tubular breathing and increased vocal resonance over dull area. 9 P.M.—Pulse 116, temp. 101·6°.

Oct. 24.—9 A.M.—Pulse 120, temp. 100·4°; complains of pain in shoulders. 9 P.M.—Pulse 108, temp. 100·1°.

The temperature and pulse now fell to about the standard of health, the pains and sweating ceased, and the dulness over the chest cleared up.

Discharged convalescent on November 16.

CASE 19.—S. T., æt. 25, porter, admitted October 21, 1875. Mother rheumatic; previous health good; illness commenced with pains in the left knee and ankle on the 17th inst.

State on admission.—Pulse 100, temp. 100·6°; both knees, right ankle, and left elbow swollen, hot, red, and painful; heart sounds clean, but there is cantering rhythm. Take iodide of potassium and quinine every eight hours. 9 P.M.—Pulse 120, temp. 102·3°.

Oct. 22.—9 A.M.—Pulse 98, temp. 100·9°; sweating freely; complains much of the pains. 9 P.M.—Pulse 120, temp. 102·7.°

Oct. 23.—9 A.M.—Pulse 100, temp. 102·5°; slept at

intervals; right knee and elbow very painful, hot, and swollen; sweating freely. 9 P.M.—Pulse 110, temp. 101·8°

Oct. 24.—9 A.M.—Pulse 116, temp. 101·8°; sour sweating; has had epistaxis this morning and last night. 9 P.M.—Pulse 112, temp. 101·2°.

Oct. 25.—9 A.M.—Pulse 108, temp. 102·8°; sweating very profusely; area of cardiac dulness increased; distinct friction at mid-sternum. 9 P.M.—Pulse 110, temp. 102°.

Oct. 26.—9 A.M.—Pulse 112, temp. 102·5°. 9 P.M.—Pulse 108, temp. 101·1°.

Oct. 27.—9 A.M.—Pulse 112, temp. 102·3°. 9 P.M.—Pulse 112, temp. 101·8°.

Oct. 28.—9 A.M.—Pulse 112, temp. 102·6°; had epistaxis again last night. 9 P.M.—Pulse 116, temp. 102·2°.

Oct. 29.—9 A.M.—Pulse 112, temp. 103·3°; sweating profusely. 9 P.M.—Pulse 122, temp. 102·7°.

Oct. 30.—9 A.M.—Pulse 120, temp. 102·3°; sweating; pain only in right hand except on moving, when several joints are painful; distinct friction at base of heart. 9 P.M.—Pulse 114, temp. 102°.

Oct. 31.—9 A.M.—Pulse 116, temp. 102·3°. 9 P.M.—Pulse 110, temp. 101·5°.

Nov. 1.—9 A.M.—Pulse 104, temp. 100·7°. 9 P.M.—Pulse 100, temp. 101·5°.

Nov. 2.—9 A.M.—Pulse 96, temp. 100·8°. 9 P.M.—Pulse 106, temp. 101·7°.

Nov. 3.—9 A.M.—Pulse 94, temp. 99·8°; 9 P.M.—Pulse 102, temp. 100°.

The temperature now for some days ranged below 100°, and the pulse from 90 to 108; sour sweating continued. On November 5 the heart sounds were clear and there was no pain; profuse epistaxis requiring the nostrils to be plugged occurred on the 7th; the medicines were now omitted. On November 11, the temperature, previously normal, rose to 101·4°, and next day the patient complained of pains in the loins and right elbow; he was sweating freely and the tongue had again become creamy; simple effervescing medicine was prescribed. During the next three days the temperature ranged from 100·5° to 102·3°; the pulse from 106 to 124; the wrists and knees again became painful and pericardial friction returned. This relapse subsided slowly, and the temperature did not again become normal until November 20. Recovery was then more rapid, and he was discharged convalescent, with only slight roughness of the first sound of the heart, on December 8.

CASE 20.—H. J. B., æt. 31, engraver, admitted October 28, 1875. Previous health good; got wet through about a week ago, and next morning awoke with pains in several joints.

State on admission.—Pulse 120, temp. 101·4°; complains of pains in various joints; ankles, wrists, and fingers of the left hand are hot, swollen, red, and painful; first cardiac sound rough; tongue furred.

Oct. 29.—9 A.M.—Pulse 104, temp. 101·4°; sweating. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 98, temp. 100·8°.

Oct. 30.—Pulse 96, temp. 99·8°; pains continue. 9 P.M.—Pulse 98, temp. 101·6°.

Oct. 31.—9 A.M.—Pulse 94, temp. 100·8° 9 P.M.—Pulse 100, temp. 101·3°.

November 1.—9 A.M.—Pulse 94, temp. 99·5°; sweating freely. 9 P.M.—Pulse 104, temp. 100·4°.

Nov. 2.—9 A.M.—Pulse 98, temp. 99·5°; still sweating.

Next day there was no pain excepting in the shoulders. The temperature did not again rise above 100°, and in a day or two became quite normal. The pulse ranged from 84 to 114.

Discharged convalescent on November 26.

CASE 21.—M. A. B., æt. 20, servant, admitted October 25, 1875. Father rheumatic. Has had two previous attacks of rheumatic fever, but has otherwise been healthy. Illness commenced on the 22nd inst. with pains in the knees and ankles.

State on admission.—Pulse 120, temp. 102·8°; both knees and left ankle swollen, red, and painful; face much flushed; tongue thickly coated; systolic murmur over præcordia.

October 26.—9 A.M.—Pulse 112, temp. 103·2°; knees much enlarged from synovial effusion. 9 P.M.—Pulse 108, temp. 101·8°.

Oct. 27.—9 A.M.—Pulse 128, temp. 103·2°; profuse sour sweating; both wrists swollen, hot, and red. 9 P.M.—Pulse 110, temp. 101·5°.

Oct. 28.—9 A.M.—Pulse 108, temp. 102·7°. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 110, temp. 100·2°.

Oct. 29.—9 A.M.—Pulse 98, temp. 101·2°; profuse sour sweating. 9 P.M.—Pulse 100, temp. 100·7°.

Oct. 30.—9 A.M.—Pulse 98, temp. 100·5°; systolic murmur unchanged. 9 P.M.—Pulse 72; temp. 100°.

Oct. 31.—9 A.M.—Pulse 74, temp. 99°; tongue cleaning; sour sweating continues. 9 P.M.—Pulse 76, temp. 99·2°.

The pains entirely subsided in a day or two from this time. The temperature ranged from 98·6° to 99·5°, and the pulse from 76 to 100. Sweating still continued for some days and the systolic murmur was noted on November 16. On December 3 the first cardiac sound was rough and the second accentuated.

Discharged quite convalescent on December 4.

CASE 22.—W. H., æt. 21, carman, admitted November 7, 1875. This, his first attack of rheumatic fever, commenced with pains in the joints of the lower limbs a week ago, followed by similar pains in the hands.

State on admission.—Pulse 120, temp. 103°: both knees, ankles, and left wrist swollen and painful. Action of heart irregular, increased area of cardiac impulse. 9 P.M.—Pulse 108, temp. 102·8°.

November 8th.—9 A.M.—Pulse 112, temp. 101·8°; profuse sweating; pulse regular. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 108, temp. 101·6°.

Nov. 9.—9 A.M.—Pulse 100, temp. 100·7°; sour sweating; pains continue and have extended to right wrist. 9 P.M.—Pulse 104, temp. 101·2°.

Nov. 10.—9 A.M.—Pulse 105, temp. 100·9°. 9 P.M.—Pulse 108, temp. 100°.

Nov. 11.—9 A.M.—Pulse 100, temp. 100·5°; slight pain and tenderness of right ankle and knee; other joints easy; less sweating; distinct pericardial friction, intensified by pressure. 9 P.M.—Pulse 108, temp, 100·4°.

Nov. 12.—9 A.M.—Pulse 120, temp. 101·2°; pain only in right ankle and left wrist. 9 P.M.—Pulse 112, temp. 101·6°.

Nov. 13.—9 A.M.—Pulse 120, temp. 101·2°; pericardial friction still audible. 9 P.M.—Pulse 113, temp. 100·8°.

Nov. 14.—9 A.M.—Pulse 120, temp. 100·9°; sweating very freely. 9 P.M.—Pulse 116, temp. 102°.

Nov. 15.—9 A.M.—Pulse 102, temp. 100·8°; slight pain and tenderness in right ankle only; profuse miliary rash upon the body. 9 P.M.—Pulse 120, temp. 102·4°.

Nov. 16.—9 A.M.—Pulse 116, temp. 100·8°. 9 P.M.—Pulse 112, temp. 101°.

Nov. 17.—9 A.M.—Pulse 112, temp. 100·6°; free from pain. 9 P.M.—Pulse 108, temp. 102·2°.

Nov. 18.—9 A.M.—Pulse 92, temp. 101°; no pain anywhere; eruption fading. 9 P.M.—Pulse 106, temp. 101°.

Nov. 19.—9 A.M.—Pulse 96, temp. 100·8°; sweating freely; pain in right wrist. 9 P.M.—Pulse 96, temp. 100°.

Nov. 20.—9 A.M.—Pulse 104, temp. 101·9°; very sour sweating; loud pericardial friction over præcordia. 9 P.M.—Pulse 100, temp. 101·6°.

Nov. 21.—9 A.M.—Pulse 100, temp. 101·8°; no pain. 9 P.M.—Pulse 104, temp. 102·6°.

Nov. 22.—9 A.M.—Pulse 104, temp. 102·6°; sweating profusely; eruption fading; systolic murmur at apex of heart; complains of pain in the muscles of thighs. 9 P.M.—Pulse 84, temp. 101·8°.

Nov. 23.—9 A.M.—Pulse 108, temp. 102·1°; pain and swelling of left wrist. 9 P.M.—Pulse 100, temp. 102·6°.

Nov. 24.—9 A.M.—Pulse 109, temp. 101·8°; tenderness of right sterno-clavicular articulation. 9 P.M.—Pulse 96, temp. 102·4°.

Nov. 25.—9 A.M.—Pulse 108, temp. 101·7°; sudamina on trunk; pericardial friction continues. 9 P.M.—Pulse 100, temp. 102°.

Nov. 26.—9 A.M.—Pulse 116, temp. 102·4° 9 P.M.—Pulse 120, temp. 102·2°

Nov. 27.—9 A.M.—Pulse 108, temp. 102·1°; urine normal; sour sweating continues. 9 P.M.—Pulse 106, temp 101·6°.

Nov. 28.—9 A.M.—Pulse 108; temp. 101·7°; swelling of several finger-joints; systolic murmur at apex of heart and pericardial friction still audible. 9 P.M.—Pulse 108, temp. 100·4°.

Nov. 29.—9 A.M.—Pulse 112, temp. 100·9°; sweating very much. 9 P.M.—Pulse 100, temp. 100°.

Nov. 30.—9 A.M.—Pulse 92, temp. 99·6°; free from pain. 9 P.M.—Pulse 95, temp. 99·8°.

The temperature now ranged from 98° to 99·4°, and the pulse from 84 to 110, until December 16. The pains were very slight, and generally there were none; sweating continued more or less, and a loud systolic murmur was audible at the apex of the heart.

On December 16 the pulse rose to 128 and the temperature to 100·5°; both feet and ankles became swollen, painful, red, and hot; friction was again heard at the præcordia. Resume medicine. 9 P.M.—Pulse 116, temp. 98·6°

Dec. 17.—9 A.M.—Pulse 112, temp. 99°; feet still swollen, but less painful. 9 P.M.—Pulse 100, temp. 97·8°.

Permanent improvement now set in, and the patient was discharged on December 29, but with a mitral systolic murmur.

Case 23.—E. K., æt. 13, admitted November 10, 1875. Illness commenced about nine days since, and was caused by standing in the wet. It began with rigors, followed by pains in the back and subsequently in the joints.

State on admission.—9 A.M.—Pulse 108, temp. 101·4°; sweating; right ankle and knee swollen, painful, and hot; tongue much furred; impulse of heart attended by a thrill at the apex; loud systolic murmur over præcordia, intensified by pressure, and not heard behind. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 112, temp. 101·2°.

Nov. 11.—9 A.M.—Pulse 104, temp. 100°; urine sp. gr. 1032, very acid, crowded with lithates, albumen a trace, systolic murmur continues. 9 P.M.—Pulse 106, temp. 100·6°.

Nov. 13.—9 A.M.—Pulse 98, temp. 100·3°. 9 P.M.—Pulse 96, temp. 99°.

Next day the temperature became normal and remained so. The pulse ranged from 85 to 90, and the pains ceased. On November 20 pericardial friction was scarcely audible; there had been no return of pain. The urine still presented a trace of albumen and remained very acid and of high sp. gr. On November 29 the albuminuria had ceased.

Discharged quite well on December 7.

Case 24.—A. F., æt. 16, errand boy, admitted November 11, 1875. Has not previously suffered from rheumatism, but comes of a very rheumatic family. Illness commenced seven days ago with pains in lower limbs.

State on admission.—Pulse 110, temp. 100°; left ankle and foot swollen, red, and painful; first sound of heart rough and prolonged. 9 P.M.—Pulse 116, temp. 100·3°.

November 12.—Pulse 108, temp. 100·2°. Take iodide of potassium and quinine every eight hours. 9. P.M.—Pulse 116, temp. 99·8°.

Two days later the temperature and pulse were normal. There was no pain, but sweating continued, and there was a distinct systolic murmur over præcordia. There was no return of pains, but profuse sweating continued for some days. The systolic murmur also remained, though less loud.

Discharged convalescent on November 30.

Case 25.—H. H., æt. 15, apprentice, admitted November 13, 1875. Family and previous health good. Rheumatic pains commenced on the 10th inst. in knees and ankles.

State on admission.—Pulse 96, temp. 99·8°; both knees,

left ankle, and right instep swollen, hot, and very tender; sour sweating; cantering rhythm of heart. 9 P.M.—Pulse 92, temp. 104°.

Nov. 14.—9 A.M.—Pulse 96, temp. 102°; slept badly; had occasional wandering; pericardial friction at base of heart. Take iodide of potassium and quinine every six hours. 9 P.M. —Pulse 104, temp. 103·1°.

Nov. 15.—9 A.M.—Pulse 84, temp. 101·1°; sweating; slept at intervals; had no wandering; free from pain, but right knee and ankle tender to pressure; slight epistaxis this morning. 9 P.M.—Pulse 82, temp. 102·3°.

Nov. 16.—9 A.M.—Pulse 80, temp. 100·2°; sweating very profusely; free from pain; distinct friction at base of heart. 9 P.M.—Pulse 78, temp. 99·8°.

Nov. 17.—Pulse 62, temp. 98·4°; still much sweating.

The fever did not return and the progress was satisfactory. The pericardial friction was not heard after November 26, but the pulse was slow and irregular.

Discharged quite convalescent on December 10.

CASE 26.—J. P., æt. 30, housewife, admitted November 22, 1875. Has already had three attacks of rheumatic fever. Has been also subject to bronchitis. Illness commenced three weeks ago after getting wet, but has only been disabled for a day or two.

State on admission.—Pulse 120, temp. 102°; knees, elbows, and wrists swollen, red, hot, and painful; cantering rhythm of heart's action; impaired resonance and sibilus over right side of chest; very profuse sour sweating. 9 P.M.—Pulse 124, temp. 102·8°.

Nov. 23.—9 A.M.—Pulse 118, temp. 103·6°; heart sounds clear. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 120, temp. 103·2°.

Nov. 24.—9 A.M.—Pulse 115, temp. 102·6°; pains in joints much easier; heart sounds clean; profuse sweating. 9 P.M. —Pulse 125, temp. 102·6°.

Nov. 25.—9 A.M.—Pulse 120, temp. 102·4°. 9 P.M.—Pulse 116, temp. 102·2°.

Nov. 26.—Pulse 125, temp. 101·1°; dyspnœa, harsh breathing, and crepitation in base of right lung; rhonchus over front of lungs; sputum tenacious and frothy.

Nov. 27.—9 A.M.—Pulse 117, temp. 101·4°; pains much easier; breathing also easier; sputum presents streaks of blood. 9 P.M.—Pulse 120, temp. 101·8°.

Nov. 28.—9 A.M.—Pulse 120, temp. 101·6°; resonance much impaired over the base of right lung; tubular breathing; crepitation and increased vocal resonance and vibration over dull area; crepitation, harsh breathing, and pleuritic friction in lower part of left axillary region; expectoration tenacious and muco-purulent. 9 P.M.—Pulse 112, temp. 101·8°.

Nov. 29.—9 A.M.—Pulse 115, temp. 101·8°; urine sp. gr. 1030, acid, contains a good trace of albumen, no blood. 9 P.M. —Pulse 120, temp. 101·4°.

Nov. 30.—9 A.M.—Pulse 110, temp. 100·4°; no pains in limbs; slight pain in right shoulder. 9 P.M.—Pulse 108, temp. 100°.

December 1.—9 A.M.—Pulse 112, temp. 99·9°; no pains; breathing shallow. 9 P.M.—Pulse 125, temp. 100°.

Dec. 2.—9 A.M.—Pulse 105, temp. 99·5. 9 P.M.—Pulse 104, temp. 100°.

Dec. 3.—9 A.M.—Pulse 110, temp. 99·8°; no pains; aspect much improved; heart sounds normal; impaired resonance below point of left scapula; tubular breathing; increased vocal resonance and high-toned crepitation in base of left lung; abundant moist crepitation in base of right lung. 9 P.M.—Pulse 106, temp. 99·4°.

The improvement was now continuous until December 18, on which day the patient complained of pain in the loins and right shoulder. Next day the pulse was 96, the temp. 101·3°; there was again profuse sweating, pain and swelling of the knuckles of the left hand, and cantering rhythm of the heart. Resume the iodide of potassium and quinine treatment.

Dec. 20.—9 A.M.—Pulse 130, temp. 101·4°; great pain in both arms, hands, shoulders, and back; profuse sour sweating; pericardial friction; cough troublesome; moist crepitation all over front of both lungs; four days ago the lungs were almost free from crackling or other adventitious sounds; urine sp. gr. 1030, free from albumen. 9 P.M.—Pulse 128, temp. 101·4°.

Dec. 21.—9 A.M.—Pulse 128, temp. 102°; profuse sour sweating; pains in joints easier; pericardial friction continues. 9 P.M.—Pulse 130, temp. 102·4°.

Dec. 22.—9 A.M.—Pulse 140, temp. 103·4°; pleuritic friction over back of chest on both sides; abundant moist sounds over back of chest; pains in joints much easier.

Dec. 23.—9 A.M.—Pulse 130, temp. 102·8°; pains everywhere much better; pericardial friction not so pronounced. 9 P.M.—Pulse 132, temp. 103·4°.

Dec. 24.—9 A.M.—Pulse 130, temp. 102·7°; sweating

continues; pains almost gone. 9 P.M.—Pulse 120, temp. 100·3°.

On the 25th the temperature fell below 100°, and from this time there was continuous improvement, and there was no return of pains. The lung symptoms cleared up, the sweating disappeared, and there only remained on January 6 roughness of the first sound of heart.

Discharged convalescent on January 16.

CASE 27.—J. S., æt. 25, porter, admitted November 29, 1875. No history of rheumatism in family, but a brother died of heart disease. Previous health good. Has been exposed to work in damp places. Illness commenced on November 24 with shivering, followed by severe pains in the loins and knees, subsequently passing to the shoulders and other joints. Blisters had been applied to the knees previous to his admission.

State on admission.—Pulse 100, temp. 101·5°; affected joints hot, swollen, and painful; sour sweating; heart's systole rough and murmurish; second sound accentuated. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 90, temp. 101°.

Nov. 30.—9 A.M.—Pulse 92, temp. 100·2°; pains less severe; faint systolic murmur at apex of heart; fingers and knuckles of left hand swollen, hot, and tender.

The improvement was very rapid and the patient was discharged quite convalescent on December 10.

CASE 28.—J. B., æt. 35, carpet beater, admitted December 21, 1875. Father suffers from gout; eldest sister had rheumatic fever last year. Has been a free liver. Previous health good. Illness commenced some days ago with pains in the right knee, left hand, arm, and shoulder and both ankles.

State on admission.—Pulse 90, temp. 100·8°; both knees and left wrist swollen and painful. First cardiac sound rough and weak at the apex; urine normal.

December 22.—9 A.M.—Pulse 90, temp. 100·9°; sour sweating; pains continue. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 80, temp. 100·2°.

Dec. 23.—9 A.M.—Pulse 70; temp. 100·6°; pains much decreased; sour sweating continues. 9 P.M.—Pulse 80, temp. 99·8°.

Dec. 24.—9 A.M.—Pulse 95; pains almost gone. The temperature and pulse now became normal and the pains altogether subsided.

Discharged convalescent on January 18.

Case 29.—J. C., æt. 36, carman, admitted January 5, 1876. Was formerly a soldier and served much abroad; a great drinker; previous health good. Present illness commenced eight days ago with pain in the left hip, which soon extended to both knees and ankles, and also to joints of upper extremities.

State on admission.—Pulse 104, temp. 101·8°; has pains in knees, wrists, and hands. Heart sounds muffled. Take effervescing medicine every six hours. 9 P.M.—Pulse 96, temp. 101·4°.

January 7.—9 A.M.—Pulse 98, temp. 100·1°; pain more severe in right knee. 9 P.M.—Pulse 90, temp. 100·6°.

Jan. 8.—9 A.M.—Pulse 95, temp. 100·8°; pain severe in right arm. 9 P.M.—Pulse 96, temp. 101·4°.

Jan. 9.—9 A.M.—Pulse 95, temp. 100°. 9 P.M.—Pulse 98, temp. 99·8°.

Jan. 10.—9 A.M.—Pulse 90, temp. 100·4°; sweating profusely; pains increased. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 88, temp. 99·4°.

Jan. 11.—9 A.M.—Pulse 80, temp. 99·2°; pains much easier.

Next day the temperature fell to 98·6°, and the pains left. The pulse and temperature ranged about normal until Jan. 27, on which day there was a return of pains, preceded on the day before by stiffness in the joints and sweating.

Jan. 27.—9 A.M.—Pulse 108, temp. 100·3°. 9 P.M.—Pulse 96, temp. 100·2°.

Jan. 28.—9 A.M.—Pulse 102, temp. 100·3°; still severe pains; copious sour sweating. 9 P.M.—Pulse 92, temp. 100°.

Jan. 29.—9 A.M.—Pulse 96, temp. 100°; free from pain. 9 P.M.—Pulse 102, temp. 99·5°.

There was no return of pains, the temperature fell to the normal standard, and the pulse also became normal, the sweating ceased, and he was discharged convalescent on February 8.

Case 30.—G. D., æt. 30, warehouseman, admitted January 12, 1876. Has already had two severe attacks of rheumatic fever. Present illness commenced about a week ago with shivering and pains in the loins.

State on admission.—Pulse 106, temp. 101°; has pains in various joints; heart sounds rough. 9 P.M.—Pulse 125, temp. 100·8°.

Jan. 13.—9 A.M.—Pulse 100, temp. 100·2°; faint systolic

murmur at apex of heart; second sound also rough. 9 P.M.—Pulse 120, temp. 100°.

Jan. 14.—9 A.M.—Pulse 105, temp. 101°; pains in other joints easier, but has severe pain in the left knee. 9 P.M.—Pulse 120, temp. 101·2°

Jan. 15.—Pulse 115, temp. 100·4°; pain in left knee continues. 9 P.M.—Pulse 120, temp. 100·4°.

Jan. 16.—Pulse 118, temp. 101·5°; pain in both ankles and right knee. 9 P.M.—Pulse 120, temp. 101°.

Jan. 17.—9 A.M.—Pulse 115, temp. 100·9°; pains in both shoulders, right knee, and ankles; urine sp. gr. 1022, a faint trace of albumen. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 120, temp. 100·6°.

Jan. 18.—Pulse 118, temp. 100·5°; pains much easier. 9 P.M.—Pulse 120, temp. 99·8°.

Jan. 19.—9 A.M.—Pulse 115, temp. 99·4°; pains generally better, but has severe pain in the nape of the neck; sour sweating; systolic murmur at apex of heart.

The pains now rapidly disappeared, and the temperature and pulse soon fell to the standard of health. The systolic murmur was still audible on February 5.

Discharged convalescent on February 5.

CASE 31.—J. J., æt. 30, milkman, admitted January 13, 1876. A sister has suffered from rheumatic fever; patient has already had four previous attacks of rheumatic fever. Illness was caused by sleeping in a damp bed four days before admission; has been a hard drinker.

State on admission.—Pulse 126, temp. 101·5°; has pains in most of the joints, several of which are swollen, red, and hot; first cardiac sound accentuated. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 108, temp. 102·4°; pains severe; has had copious epistaxis this afternoon.

Jan. 14.—Pulse 120, temp. 101·2°; profuse sweating. 9 P.M.—Pulse 114, temp. 101·4°.

Jan. 15.—9 A.M.—Pulse 95, temp. 100·5°; pains less severe; copious sour sweating; slight epistaxis again this morning. 9 P.M.—Pulse 90, temp. 100·4°.

Jan. 16.—9 A.M.—Pulse 72, temp. 99°; less pain. 9 P.M.—Pulse 64, temp. 98·6°.

Jan. 17.—9 A.M.—Pulse 75, temp. 98·4°; free from pain; first sound of heart rough and murmurish.

The improvement continued, and he was discharged convalescent towards the end of January.

Case 32.—J. Z., æt. 23, nurse, admitted January 13, 1876. Father suffered from rheumatism. Previous health good. Has had occasional pains and slight sore throat for several weeks, but became worse three days ago.

State on admission.—Pulse 114, temp. 102°; ankles and right knee swollen, hot, and painful; complains of slight pain in the præcordia; first sound of heart rough and accentuated. 9 P.M.—Pulse 120, temp. 102·6°.

Jan. 15.—9 A.M.—Pulse 90, temp. 101·4°; much sour sweating; pains easier. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 105, temp. 102·2°.

Jan. 16.—9 A.M.—Pulse 85, temp. 103·5°; pains better. 9 P.M.—Pulse 95, temp. 100·8; severe pain in right knee.

Jan. 17.—9 A.M.—Pulse 56, temp. 99·2°.

Jan. 18.—9 A.M.—Pulse 55, temp. 98°; free from pains.

The temperature did not again exceed the normal standard, and was frequently subnormal. Slight pains continued to recur for several days.

Discharged convalescent on February 15.

Case 33.—A. W., æt. 19, housemaid, admitted February 7, 1876. One brother has had rheumatic fever; has also herself had two previous attacks. Caught cold a week ago, and has suffered since from pains in both feet and knees.

State on admission.—Pulse 116, temp. 102·4°; both ankles and knees swollen, red, and painful; complains also of pains in the loins and hips. First cardiac sound rough and murmurish at the base of the heart. 9 P.M.—Pulse 110; temp. 101·9°.

Feb. 7.—9 A.M.—Pulse 110, temp. 102·5°; still in much pain. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 110, temp. 101·8°.

Feb. 8.—9 A.M.—Pulse 105, temp. 101·2°; pains still severe. 9 P.M.—Pulse 104, temp. 101·4°.

Feb. 9 A.M.—Pulse 100, temp. 100·2°; pains generally easier but has pain and swelling of right elbow; systolic murmur at apex of heart. 9 P.M.—Pulse 75, temp. 99·4°.

In the course of a day or two the pains entirely subsided, and the pulse and temperature became normal; the systolic murmur was still audible on February 4.

Discharged convalescent on February 29.

Case 34.—V. S., æt. 28, shoemaker, admitted February 15, 1876. Previous health good.

State on admission.—Pulse 78, temp. 100°; pain, swelling

and tenderness of left elbow and right ankle; purpurous patches, varying in size from a split pea to a shilling, scattered over both lower limbs; urine normal. 9 P.M.—Pulse 72, temp. 100·4°.

Feb. 16.—9 A.M.—Pulse 72, temp. 100·6°. 9 P.M.—Pulse 68, temp. 99·3°.

Feb. 17.—9 A.M.—Pulse 96, temp. 99·2°; sweating profusely; has some patches of purpura on hands. Take four grains of iodide of potassium in effervescing medicine every six hours. 9 P.M.—Pulse 76, temp. 102°.

Feb. 18.—9 A.M.—Pulse 96, temp. 102·5°; pain and tenderness in left wrist; has several small elevations upon the scalp. 9 P.M.—Pulse 98, temp. 102·8°.

Feb. 19.—9 A.M.—Pulse 100, temp. 102·2°; both ankles swollen, red, hot, and painful; numerous patches of purpura, slightly elevated above the surrounding surface, and with ill-defined margins upon both shins, legs, and left arm. Continue and take quinine pills every six hours. 9 P.M.—Pulse 92, temp. 101·8°.

Feb. 20.—9 A.M.—Pulse 108, temp. 103°. 9 P.M.—Pulse 104, temp. 101·6°.

Feb 21.—9 A.M.—Pulse 100, temp. 102·4°; pain, swelling and tenderness of left wrist and elbow and both ankles. 9 P.M. —Pulse 100, temp. 101°.

Feb. 22.—9 A.M.—Pulse 88, temp. 100·2°; no pain. Eruption fading. 9 P.M.—Pulse 88, temp. 100·4°.

Feb. 23.—9 A.M.—Pulse 90, temp. 100·6°; slight pain in the ankles. Continue, and add two grains of iodide of potassium to draught. 9 P.M.—Pulse 88, temp. 100·6°.

Feb. 24.—9 A.M.—Pulse 86, temp. 100·6°. 9 P.M.—Pulse 90, temp. 101°.

Feb. 25.—9 A.M.—Pulse 96, temp. 102·4°; slight tenderness in right ankle and knee. Eruption almost gone. 9 P.M.—Pulse 96, temp. 101·3°.

Feb. 26.—9 A.M.—Pulse 102, temp. 101·4°; still complains of pain in right knee, which is swollen. 9 P.M.—Pulse 88, temp. 100·8°.

Feb. 27.—9 A.M.—Pulse 100, temp. 101°. 9 P.M.—Pulse 102, temp. 100·6°.

Feb. 28.—9 A.M.—Pulse 104, temp. 101·2°; almost free from pain. 9 P.M.—Pulse 96, temp. 101·3°.

March 1.—Pulse 100, temp. 100·2°; swelling of both wrists and right ankle; eruption has quite disappeared. 9 P.M.—Pulse 92, temp. 99·8°.

The pains and fever now subsided and the patient was discharged convalescent on April 12.

CASE 35.—G. W. R., æt. 26, gas-fitter, admitted February 23, 1876. A brother has had rheumatic fever; has also himself had it at the age of fifteen years slightly. Present illness commenced with pain in both wrists and left ankle, followed by pains in other joints.

State on admission.—Pulse 84, temp. 102°; skin hot and dry; pain and swelling of both ankles, knees, and wrists; harsh pericardial friction, loudest at mid-sternum. Take iodide of potassium and quinine every eight hours. 9 P.M.—Pulse 90, temp. 102·3°.

Feb. 24.—9 A.M.—Pulse 80, temp. 101·5°; pains somewhat easier; friction at præcordia continues; a faint systolic murmur at apex of heart. 9 P.M.—Pulse 85, temp. 101·6°.

Feb. 25.—9 A.M.—Pulse 75, temp. 101·6°; sour sweating; severe pain in left shoulder. 9 P.M.—Pulse 60, temp. 100·5°.

Feb. 26.—9 A.M.—Pulse 75, temp. 99·6°; pains very much better; systolic murmur at apex of heart, also audible at base. 9 P.M.—Pulse 72, temp. 100°.

Feb. 27.—9 A.M.—Pulse 70, temp. 99·9°; slight pain in right knee. 9 P.M.—Pulse 80, temp. 100·6°.

Feb. 28.—9 A.M.—Pulse 70, temp. 99·5°; slight pain in shoulders. 9 P.M.—Pulse 72, temp. 100·2°.

Feb. 29.—9 A.M.—Pulse 65, temp. 99·4°; sweated much during the night; severe pains in shoulders. 9 P.M.—Pulse 84, temp. 100·6°.

March 1.—9 A.M.—Pulse 85, temp. 100·3°; still severe pain in right shoulder; systolic murmur over præcordia. 9 P.M.—Pulse 80, temp. 101·8°

March 2.—9 A.M.—Pulse 92, temp. 100·4°; pain in left shoulder. 9 P.M.—Pulse 90, temp. 101°.

The temperature now fell to a little over 99° and the pains became easier, but did not altogether subside, and wandered from joint to joint until March 8, on which day the patient was free from pain and the temperature was normal. On March 14 there was return of pain in the right leg, and the temperature rose to 100°, and the pulse to 90. The cardiac murmur was still audible.

March 15.—Pulse 100, temp. 101·2°; pains in both knees.

March 16.—Pulse 95, temp. 101·2°; pain in left ankle, and pain with redness and swelling of right hand and wrist. 9 P.M.—Pulse 90, temp. 102°.

March 17.—9 A.M.—Pulse 90, temp. 101·4°. 9 P.M.—Pulse 95, temp. 101·8°.

March 18.—9 A.M.—Pulse 90, temp. 99·8°; left wrist and hand much swollen and very painful; right wrist and hand easier. 9 P.M.—Pulse 95, temp. 101°.

March 19.—9 A.M.—Pulse 98, temp. 100·6°; pains easier. 9 P.M.—Pulse 80, temp. 100·2°.

On the following day the temperature fell to 98·2° and did not again exceed 99·6°, being for the most part about 98·6°; the pulse ranged from 75 to 110. The pains gradually subsided, and the patient was discharged convalescent on April 14.

CASE 36.—R. S. B., æt. 22, admitted February 23, 1876. Family and personal history satisfactory. After exposure to cold and wet was seized with shivering, followed by pains in the knees, wrists, ankles, and back.

State on admission.—Pulse 84, temp. 99°; aspect heavy; tongue dry, cracked, and furred; sordes on teeth; breathing rapid and laboured; impaired resonance over bases of lungs; heart sounds feeble but clean. Pains in ankles, knees, and wrists severe. 9 P.M.—Pulse 96, temp. 101°, resp. 36.

Feb. 24.—9 A.M.—Pulse 84, temp. 101°, resp. 54; has been noisy and delirious during night; respirations shallow; short, dry abortive cough; considerable swelling of both knees and severe pain in left knee; answers questions coherently, but his manner is excited; urine sp. gr. 1026, loaded with lithates, contains a large trace of albumen and blood. Take iodide of potassium and quinine every six hours; cupping to five ounces over loins; cradle over knees. 9 P.M.—Pulse 101, temp. 102°; still restless and wandering; resp. 70.

Feb. 25.—9 A.M.—Pulse 96, temp. 102·1°, resp. 50; delirious and restless during night; throat and fauces injected; pains severe; tongue dry and coated; complains of pain in the chest. 9 P.M.—Pulse 95, temp. 101·8°, resp. 45.

Feb. 26.—9 A.M.—Pulse 95, temp. 102·2°, resp. 55; slept after two doses of chloral; wandered; pains less; sweats profusely. 9 P.M.—Pulse 100, temp. 103°, resp. 40.

Feb. 27.—9 A.M.—Pulse 85, temp. 101·7°, resp. 30; wandered during night; had three doses of chloral. Second sound of heart reduplicated; urine still contains albumen and a trace of blood. Complains of tightness at chest; cough troublesome; sputum scanty, tenacious, and frothy; heart sounds clean. 9 P.M.—Pulse 100, temp. 102·4°, resp. 45.

Feb. 28.—9 A.M.—Pulse 96, temp. 101·3°, resp. 40; slept

well; lips rather livid; fauces injected; mouth and gums have an aphthous, diphtheritic appearance; cough troublesome; sputum scanty; heart sounds clean; urine shows a faint trace only of albumen, but a copious one of blood, loaded with lithates; pain in joints much easier; still impaired resonance over bases of lungs; breath sounds normal in front but accompanied with occasional crackling in posterior bases. Port wine six ounces daily; omit medicine; borax lotion to mouth. 9 P.M.—Pulse 90, temp. 102°, resp. 52; has return of pain in left knee.

From this time there were various alternations; sometimes the temperature fell almost to the normal standard and the pains left. Again, the temperature rose to from 100° to 101°; on one of these occasions there was pericardial friction. Delirium usually accompanied the recrudescences of fever, and there was much sweating. On March 17 the area of cardiac dulness extended five inches longitudinally and five and a half transversely. The urine was now free from both blood and albumen. The treatment was varied according to circumstances, but was no longer of the same kind. Died on March 22. Post-mortem examination was refused.

CASE 37.—H. P., æt. 31, servant, admitted February 29, 1876. A sister suffers from rheumatism; previous health good. Illness began three days ago with pains in the left foot, both knees, and hands.

State on admission.—Pulse 120, temp. 100°; both knees and right ankle swollen, red, and painful. First sound of heart prolonged. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 128, temp. 101·3°; sweating profusely.

March 1.—9 A.M.—Pulse 115, temp. 100·5°; profuse sour sweating; pains easier. 9 P.M.—Pulse 100, temp. 100·4°.

The pains continued, and moved about from joint to joint without being very severe; the temperature ranged from 99·8° to 100·6°, and the pulse from 124 to 90, until March 21, when the note was, "No pain; first cardiac sound rough; temp. 98·8°, pulse 90." From this date the improvement was continuous, and the patient was discharged convalescent on April 10.

CASE 38.—W. M., æt. 22, shoemaker, admitted March 3, 1876. Father suffered from rheumatism. Has himself had pain with swelling of joints, from time to time, without being

disabled from his work. Present illness commenced about a week since with pains in the back and ankles, which subsequently extended to other joints.

State on admission.—Pulse 90, temp. 101·4°; swelling, pain, and redness of both knees; heart sounds clean. 9 P.M.—Pulse 100, temp. 102·5°.

March 4.—9 A.M.—Pulse 105, temp. 102·6°; knees easier; both hands swollen, red, and very painful. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 82, temp. 102·9°.

March 5.—9 A.M.—Pulse 80; temp. 102·6°; wandered a little during night.

March 6.—Pulse 85, temp. 101·2°.

March 7.—9 A.M.—Pulse 80, temp. 100·8°; pains much easier.

March 8.—9 A.M.—Pulse 85, temp. 100·2°; free from pain; pulse thrilling; rough systolic murmur at apex of heart, also audible at point of scapula; double murmur at base of heart; distinct thrill at apex.

Two days later the temperature became normal. This improvement continued until March 29, on which day there was some swelling, pain, and redness of right foot; the temperature rose to 99·8° and the pulse to 108. This relapse subsided on March 31, and the patient was discharged convalescent on April 10.

CASE 39.—M. A. H., æt. 19, servant, admitted March 14, 1876. Family and personal health good. Illness began seven days before admission with pains, swelling, and redness of many joints, and sweating.

State on admission.—Pulse 115, temp. 101·3°. Considerable swelling, redness, and pain in both ankles and several other joints; copious sour sweating; systolic murmur audible over præcordia.

March 15.—9 A.M.—Pulse 110, temp. 101·8°; pains rather easier; complains of pain in the præcordia, increased by deep breathing. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 100, temp. 101·8°.

March 16.—9 A.M.—Pulse 95, temp. 100·6°; pains in upper extremities better, those in feet and legs more severe; systolic murmur at base of heart, second sound clean. 9 P.M.—Pulse 100, temp. 101·6°.

March 17.—9 A.M.—Pulse 90, temp. 99·4°. 9 P.M.—Pulse 95, temp. 100·8°.

The pains now soon subsided, and the temperature did not

again exceed 99·6°. On March 22 it became normal, but the cardiac murmur was still present when the patient was discharged on April 17.

Case 40.—E. B., æt. 22, housewife, admitted April 3, 1876. A strong family history of rheumatism. Had herself rheumatic fever when fourteen years old, and a second attack at eighteen; had also chorea in girlhood. Present illness commenced three days ago with pains in the right leg and hand.

State on admission.—Pulse 120, temp. 103·4°; both ankles, wrists, and finger-joints are swollen, red, hot, and painful. Pericardial friction at base of heart, systole rough at apex. 9 P.M.—Pulse 125, temp. 103·5°.

April 4.—9 A.M.—Pulse 123, temp. 102·6°; pains still severe. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 120, temp. 102·4°.

April 5.—9 A.M.—Pulse 110, temp. 101·6°; pains easier; complains of cough and sore throat; sputum contains blood; percussion resonance impaired over back of left lung; breath sounds harsh in front. Systolic murmur at apex of heart, but also audible over the præcordia and at the angle of scapula. 9 P.M.—Pulse 108, temp. 102°.

April 6.—9 A.M.—Pulse 110, temp. 101°; profuse epistaxis; fauces injected. 9 P.M.—Pulse 105, temp. 100°.

April 7.—9 A.M.—Pulse 100, temp. 100·2°; very profuse epistaxis, requiring the nostrils to be plugged. 9 P.M.—Pulse 120, temp. 101°.

April 8.—9 A.M.—Pulse 110, temp. 101°; pains better; systolic murmur continues; slight but distinct friction inside nipple; throat less injected; crepitation in base of left lung. Take two drachms of brandy every three hours. Continue medicines. 9 P.M.—Pulse 112, temp. 99·8°.

April 9.—9 A.M.—Pulse 110, temp. 101°; pains much less. 9 P.M.—Pulse 116, temp. 102°.

April 10.—9 A.M.—Pulse 140, temp. 103·4°, resp. 50; friction over præcordia; voice hoarse. Severe stabbing pain at præcordia and between shoulders; impaired resonance over posterior base of left lung, tubular breathing and crackles in same situation, friction at middle of scapula.

The treatment was now omitted and effervescing medicine given; leeches were applied over the præcordia, and poultices over the chest. The temperature continued high until after April 18. On April 14 pains recurred in the wrists, and subsequently in the arms and hands. The pneumonia began

decidedly to abate on April 19, after which pains returned in the knees and several other joints, and the temperature, which had been for some days under 99°, rose to 101·6°, and on May 3, coincidently with increased pain in the wrists, elbows, and knees, with profuse sweating, to 103·1°. This relapse soon subsided without any special treatment, and on May 6 the temperature again fell below 100°. On May 10 the temperature had been normal, for two days; the pulse, however, continued rather frequent; the systolic murmur at the apex of heart, also audible behind, was still present; the percussion resonance over the bases of lungs was about normal, but the breathing rather harsh. There was no return of pain, fever, or sweating, and the patient was discharged convalescent on May 30.

Case 41.—M. A. H., æt. 22, servant, admitted April 27, 1876. Has twice before had rheumatic fever. Present illness began a week ago with pain in the right ankle, which soon extended to the other foot and to both knees.

State on admission.—Pulse 108, temp. 100·2°; left knee, foot, and ankle swollen, red, hot, and painful; sweating; complains also of pains in other joints; first cardiac sound rough. 9 P.M.—Pulse 110, temp. 100°.

April 27.—9 A.M.—Pulse 100, temp. 101°; pain and swelling in both knees and ankles. Take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 96, temp. 102·4°.

April 28.—9 A.M.—Pulse 85, temp. 99·4°; complains of pain in præcordia shooting through towards shoulders; heart sounds unchanged: pains in knees better, in left ankle very severe.

Next day the temperature was normal in the morning and the pains everywhere less. Recovery was now continuous.

Discharged convalescent on May 23.

Case 42.—W. H. P., æt. 21, compositor, admitted April 29, 1876. Father gouty. A brother suffers from rheumatism. Has had two previous attacks of rheumatic fever; illness commenced with shivering, followed by tightness of the chest and shortness of breath; next day pains supervened in the loins, hips, and knees.

State on admission.—Pulse 114, temp. 104·1°; respirations 42; sweating freely; tongue furred; complains of stabbing pain below the right nipple; expansion, vocal vibration, and percussion resonance over front of chest, equal on either side; breathing rather harsh on right side; no adventitious sounds

audible; systolic murmur at apex of heart not heard behind, cantering rhythm; pain in both shoulders; short dry cough. 9 P.M.—Pulse 102, temp. 104·5°.

April 30.—9 A.M.—Pulse 122, temp. 105·4°; both ankles swollen, hot, red, and extremely painful; sweating very profusely; cantering rhythm of heart, and pericardial friction. To be sponged with cold water frequently; take iodide of potassium and quinine every six hours. 9 P.M.—Pulse 110, temp. 103·4°.

May 1.—9 A.M.Pulse 114, temp. 103·7°; wandering during night; complains of tightness of chest; sweating freely; severe pain in both ankles and wrists. 9 P.M.—Pulse 108, temp. 102·6°.

May 2.—9 A.M.—Pulse 114, temp. 102·8°; slight wandering; sour sweating; left wrist and hand swollen, red, and tender; dulness on percussion over lower posterior lobe of right lung with fine crepitation and bronchophony; moist sounds in base of right lung; slight epistaxis. 9 P.M.—Pulse 108, temp. 101·4°.

May 3.—9 A.M.—Pulse 108, temp. 102·2°; severe pain in both ankles and wrists; sweating; no wandering. 9 P.M.—Pulse 105, temp. 102·6°.

May 4.—9 A.M.—Pulse 98, temp. 102·9°; wandered during night. 9 P.M.—Pulse 102, temp. 102·8°.

May 5.—9 A.M.—Pulse 106, temp. 102·9°; sweating freely; pains in right ankle and knee; crepitation in base of right lung. 9 P.M.—Pulse 106, temp. 102·3°; delirious.

May 6.—9 A.M.—Pulse 100, temp. 103·2°; hands and wrists swollen and painful; ankles better; sour sweating continues; dulness on percussion, tubular breathing and bronchophony over lower half of back of right lung. 9 P.M.—Pulse 118, temp. 102°.

May 7.—9 A.M.—Pulse 108, temp. 102°; pains much easier. 9 P.M.—Pulse 105, temp. 101·1°.

May 8.—9 A.M.—Pulse 106, temp. 101·7°; severe pain in right shoulder. 9 P.M.—Pulse 108, temp. 100·9°.

May 9.—9 A.M.—Pulse 102, temp. 100·3°; slight pain in right elbow- and shoulder-joints; still pericardial friction; cough short and abortive; sweating freely. 9 P.M.—Pulse 98, temp. 99·6°.

The temperature did not again exceed 99·6°, and recovery took place, though rather slowly; the pains subsided in a day or two, but there was a slight recurrence of them about May 20, and also of pericardial friction. On May 23 a rough

presystolic murmur was noted at the apex of heart, and also a thrill; second sound occasionally reduplicated.

Discharged convalescent on June 13.

CASE 43.—A. H—, æt. 29, housewife, admitted May 11, 1876. Had rheumatic fever in early life, but has had good health since.

State on admission.—Pulse 70, temp. 99°; both knees, ankles, hands, and wrists swollen and painful; first sound of heart long, but without definite murmur.

May 12.—9 A.M.—Pulse 80, temp. 100·5°; faint systolic murmur at base of heart. Take iodide of potassium and quinine every eight hours. 9 P.M.—Pulse 96, temp. 101·4°.

May 13.—9 A.M.—Pulse 88, temp. 100°. 9 P.M.—Pulse 90, temp. 100·4°.

May 14.—9 A.M.—Pulse 88, temp. 100·1°; complains of stabbing pain under the left breast; friction at seat of pain. 9 P.M.—Pulse 95, temp. 100·8°.

May 15.—9 A.M.—Pulse 95, temp. 100°; pain easier. 9 P.M.—Pulse 87, temp. 100·4°.

The pains now gradually subsided, and the temperature became normal on May 18.

Discharged convalescent on June 15.

Remarks.—The cases recorded in this paper varied greatly in character and intensity. Some of them were so mild that they would probably have recovered quite as quickly under confinement to bed and fever diet without any therapeutic treatment whatever. On the other hand, other cases were really very acute. A comparison of the present series of cases with those I have previously communicated to the Society demonstrates the fact, well known to hospital physicians, that rheumatic fever varies much in intensity and character at different periods, a fact which has probably sometimes led to an over-estimate of the usefulness of certain remedies in its treatment. In confirmation of this, I may observe that not only did none of the cases included in this paper pass into a state of hyperpyrexia or manifest any other symptoms of cerebral rheumatism, but also, that no case of rheumatic fever with hyperpyrexia came under my care during the eighteen months over which this series of cases extended. Again, pneumonia or pleuro-pneumonia only supervened in three cases (Nos. 18, 26, and 40) whilst under treatment, and including the one fatal case, existed on admission in only two cases (Nos. 36 and 42).

A very large proportion of the cases were attended by

cardiac complications, which were for the most part noticed on the day of admission, twenty-six of the patients (Nos. 1, 2, 3, 4, 5, 6, 9, 10, 13, 14, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 30, 33, 35, 39, 40, and 42) having presented unequivocal evidence of the existence of either pericarditis or endocarditis, in some instances of both, when received into the wards; whilst similar affections were developed after admission in only six cases (Nos. 12, 15, 26, 31, 38, and 43). Due allowance being made for the probability that some of the patients, who had suffered from previous attacks of rheumatic fever, may probably have been the subjects of cardiac disease before the accession of their recent attack, it would appear that cardiac complications occurred in at least one half of the cases.

Relapses were infrequent and only occurred in nine cases (Nos. 5, 13, 19, 22, 26, 29, 35, 38, and 40), the relapses were only of short duration, and in none of these cases was there more that a single relapse.

Albuminuria already existed on admission in eight cases (Nos. 6, 9, 10, 12, 13, 16, 22, and 36), and became developed subsequently to admission in two cases (Nos. 26 and 30). In all these cases it may be looked upon as having been a complication of the rheumatic fever and not of independent renal disease, for, the single fatal case excluded, the urine became perfectly normal in them all as recovery from the fever took place. Albuminuria and pneumonia were both present in three cases (Nos. 18, 26, and 34), and were simultaneously developed in one case (No. 26).

Delirium was only observed in five cases (Nos. 13, 25, 36, 38, and 42). Epistaxis was only present in five cases (Nos. 19, 25, 31, 40, and 42); in one of these cases (No. 31) epistaxis occurred before the commencement of the special treatment. In another case (No. 19) it recurred several times; and in a third (No. 40) was so profuse as to necessitate plugging the nostrils. Marked depression of the heart's action only happened in three instances (Nos. 2, 11, 15); in the last of these cases the patient had been already under treatment, by which the symptoms of rheumatic fever had been suspended at the time of her admission into the hospital, in a state of alarming collapse. As this subsided, about the seventh day, after admission into the wards, the rheumatic fever from which she had been previously suffering relapsed.

The form in which the medicines were given having already been described, it is only necessary now to say that they were prescribed in moderate quantities, none of the patients having

taken more than eight grains of sulphate of quinine and twenty of iodide of potassium in the twenty-four hours; in a few cases an even smaller quantity was given. In two cases (Nos. 36 and 40) the treatment was discontinued at an early period; in the former on the occurrence of an aphthous condition of the mouth and fauces, in the latter on the occurrence of an attack of acute pleuro-pneumonia, over which the treatment appeared to exercise no control. In three cases (Nos. 13, 18, and 21), there was a delay of from three to seven days in commencing the special treatment.

The pains and fever usually subsided together in the uncomplicated cases. In twenty cases (Nos. 2, 4, 5, 11, 13, 14, 16, 17, 21, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, and 41) the pain ceased and the temperature became normal within five days from the commencement of the special treatment. In three other cases (Nos. 4, 7, and 9) the pains continued for some days after the temperature had fallen to the normal standard, but in none of the uncomplicated cases did the temperature remain febrile after the pains had ceased. In two very acute cases (Nos. 12 and 23), the pains and febrile temperature ran on for eighteen and twenty-two days respectively; in one case (No. 19), also a very acute case, and attended by profuse epistaxis, the pains and high temperature continued for fifteen days, and, in another case (No. 34), attended by purpura, for twelve days. Twelve cases (Nos. 5, 12, 13, 15, 19, 21, 22, 26, 34, 35, 37, and 42) were in the hospital from six to eight weeks. Excluding the two cases already referred to, in which the treatment was soon discontinued, and also, seven very mild cases (Nos. 2, 4, 17, 24, 27, and 41), which were each less than twenty days in the hospital, the remaining thirty-four cases were on the average each thirty-six days in the hospital.

Even though it be assumed that there was a considerable difference in the character and intensity of the disease at the two periods, my experience of the results attained by the treatment of rheumatic fever with quinine and iodide of potassium contrasts favorably with that by salicin and its congeners, described in my former papers. How far the former mode of treatment is really efficacious can only be determined when it shall have been compared with the results obtained by the treatment of a considerable number of cases upon some other plan. I shall therefore defer the discussion of the question until after I shall have submitted a series of cases treated with simple saline and alkaline medicines to the Society.

XLIV.—*A Case of Prurigo Ferox of Hebra.* By H. Radcliffe Crocker, M.D. *Read May* 26, 1882.

JANE CHIVERS, æt. 9, came to the East London Hospital for Children on June 27, 1881. It was difficult to get a succinct account of the early history, but as far as could be elicited from the mother the disease began when she was five months old with itching wheals, sores, and watery-headed papules, the secretion from which inoculated other parts of the body. There had also been a discharging eruption, presumably eczema, which began on the forehead and spread down the arms. These symptoms lasted until she was seven years old, and there are some scars on the face, but none elsewhere, consequent on some of the sores. The present condition was attained at the age of seven years, and has persisted ever since, with some remissions in the winter, but at no time has she been free from eruption.

When first seen the eruption occupied the whole of the extensor surface of the arms and legs, more thickly on the forearms and below the knee, much less abundantly on the flexor aspect; on the chest and shoulders it was sparsely distributed, below the waist very abundantly, the rest of the trunk comparatively free, and all the flexures of the joints quite normal. The eruption consists of papules about $\frac{1}{8}$th inch in diameter, at first the natural colour of the skin and convex, but subsequently acquiring a pink hue, with a scabbed apex from scratching, and on passing the hand over it the surface feels harsh and rough, like a nutmeg grater. The papules came out first when she was two years old. In addition to these distinctive papules she has various secondary eruptions, namely, eczema upon the legs and face and slightly on the forearms; ecthymatous scabbed pustules and urticarial wheals on various parts of the body, and the glands of the groin, axillæ, elbow, and neck are enlarged and indurated. The itching at night is almost intolerable, making her cry bitterly, but in the day it is not very severe.

The family history is good; both father and mother are healthy, and up to the death of the father, three years ago from drowning, the child had lived fairly well, but since then the family have been in bad circumstances.

The patient was soon after lost sight of until October, when she attended again, and I took her into University

College Hospital, where she was treated with cod-liver oil, iron, and liberal diet internally, and externally alkaline baths, yellow oxide of mercury and tar ointments; she improved rapidly, and left the hospital within two months with only thickening of the skin and slight eczema upon the legs. Knowing, however, its liability to recur, I told her to continue as an out-patient, but this she failed to do, and in January of this year she came again to Shadwell with the eruptions out again, but less severely on the legs than before. She was then exhibited to the Society, and subsequently placed upon tincture of cannabis indica ♏x ter die internally, oil of cade ♏xx to ʒj having previously been applied locally for three weeks; in a week there was marked relief to the itching, and the eruption was less prominent from diminished scratching. On Feb. 13 the cannabis indica was increased to ♏xxv, and the oil of cade ʒss to ʒj, the improvement continuing.

This case presents the typical features which Hebra described as prurigo ferox, and it will be observed that while there is only one lesion special to the disease, namely, the white or red papules with their scabbed apices mainly distributed upon the extensor surfaces, and these doubtless sequential to the itching, the other secondary lesions are so constant in their presence that when viewed in their entirety they form equally essential features of the disease. These secondary lesions are: eczema, which is often so abundant as to mask the other symptoms and to lead to erroneous diagnosis, but it is to be noted that the flexures always remain free; urticaria as a direct consequence of scratching; ecthyma from pus inoculation by the nails, and sympathetic enlargement of the lymphatic glands. All these features are present in a marked degree in this patient, and I have brought the case forward as a further illustration of the fact demonstrated by Mr. Morrant Baker's cases at the Congress to the satisfaction of our German *confrères,* viz. that prurigo agrius is not a monopoly of the German race, but that it exists in England, and that much more commonly than is generally supposed, many of them being regarded as chronic eczema; indeed, one of Mr. Morrant Baker's cases, which was acknowledged by Kaposi and Hans Hebra to be a genuine case of Hebra's prurigo, was pronounced by an English dermatologist to be in his opinion eczema, which might be cured by a few weeks' treatment. Another important point was established at the Congress—ignorance of which has been an obstacle to the recognition of the disease in this country—that Hebra himself

modified his views somewhat, admitting that the terrible picture he drew of the most severe cases, which are certainly rare among us, is not representative of all cases, and he also acknowledged that the disease was curable if treated sufficiently early and over a long period. For the severe cases seen in adults this gloomy prognosis remains true, and though some say that unless the treatment is undertaken and perseveringly carried out in infancy it is incurable, I hope at some future time to present this child again to the Society as an encouragement for a more hopeful doctrine.

XLV.—*Two Cases of Universal Ichthyosis in Adult Females.* By Bernard O'Connor, M.D. *Read May* 26, 1882.

THE two cases of universal ichthyosis which I bring under the notice of the Society this evening are so very well-marked that they amount to curiosities. They are in fact "Mermaids." The elder came under my observation towards the end of last February, at the Gerrard Street Dispensary, presenting a purpuric eruption, which had, a few days before, appeared on the legs. About this we need say nothing further than to remark that this eruption was seen through and beneath a firm glistening xerodermatous layer of integument, especially over the shins. On further examination I found that the entire body was covered with ichthyotic scales.

The family history, as far as I could discover, was good. No cutaneous affection had ever been known in either the father's or the mother's family. The patient, aged twenty-nine years, is the second born of seven children. The eldest is a son. The remaining five are daughters. The patient and the second daughter were born with the affection. The fifth daughter also had it, but whether she was born with it or not I cannot discover. She died at the age of nine months. The three remaining girls were unaffected.

This patient was brought before this Society last March, when the whole surface of the body showed the hypertrophic condition of the papillary layer and the thickening of the true skin, which are probably the essential elements of this form of disease. The structural alterations were also observed on the

backs and palms of the hands, the soles of the feet and, though to a less extent, on the eyelids and forehead. The scales presented many shades of colour, but the prevailing tint, by daylight, was yellowish grey with a suspicion of green. I could detect no particular odour on the body at the time the patient first came under observation. No perspiration was ever discovered on the greater portion of the surface, but the unaffected parts of the face and of the palms and backs of the hands (especially the backs) perspired freely. The patient stated that during the few days preceding the catamenia the scales fall off in abundance, especially when she is in bed, but that other scales immediately followed those that were thus removed. Her general health was said to be excellent, though a scrofulous aspect was noticeable.

It appears that these two sisters had been, during their earlier years, the subjects of medical treatment at different hospitals and kindred institutions, and the patient herself had given up all hope of any improvement.*

It is interesting to compare her appearance as we find it this evening with what we saw when she was here in March. There is now a marked diminution of the scaliness all over the surface. The face is perfectly free; the affection on the neck is reduced to a mere roughness; the forearms, wrists, and hands are clear; and the front of the chest, though leathery to the touch, no longer presents the imbricated appearance noticed three months ago. Prior to coming under recent treatment, she had never been more susceptible of the influence of cold than are the majority of other individuals, but lately, since the scaliness has diminished, she has frequently complained of the changes of temperature. She regards this as quite a novel feature in her case.

Respecting the treatment adopted, very little satisfaction was afforded by warm baths, emollient applications, oily materials, lotions containing various substances, such as borax, glycerine, &c., or by blisters. Jaborandi had, on a few occasions, caused a free and speedy shedding of the scales, unaccompanied by any perspiration. Of internal agents, the only substances which have given any real satisfaction whatever, are arsenic (combined with the perchloride of iron) and cod-liver oil. It is to this means alone that the great improvement in this case must be ascribed.

According to my own observation, ichthyosis is found more

* An account of their condition in early life will be found in the *Lancet*, 1855, vol. ii, p. 547.

frequently in males than in females. I have seen thirteen well-marked cases of this affection, and only three of these were females, but I do not recollect ever before observing the disease on the palms, soles, scalp, and eyelids of the same person.

Ichthyosis resembles some other disorders (such as pseudo-hypertrophic muscular paralysis, colour blindness, the hæmorrhagic diathesis, &c.) in that, while it generally *appears in the sons, it descends through the daughters,* of an affected family.

XLVI—*A Case of Lupus Psoriasis.* By Stephen Mackenzie, M.D. *Read May* 26, 1882.

G. B., boot clicker, æt. 19. His parents are alive and healthy. He is one of nine, two of whom have died from unknown causes. No skin disease ascertained to have occurred in family. He has lived all his life in the East End of London, and appears to have been well in all respects until he reached the age of sixteen, when an eruption appeared all over his face. He can assign no cause for it, but appears to have been liable to chilblains. The disease has not at any time affected his general health. He has always lived well, and has been temperate. He continued his employment up to the time of his admission into the London Hospital, October 6, 1881. The eruption has persisted on his face from its first appearance, and was limited to this part until nine months before admission, when the forearms became affected. It subsided somewhat from this part until one month before he came under observation, when the upper arms became attacked. Following this his chest, back, and abdomen were involved, and finally, his legs were affected. At times there has been considerable itching, but usually he would scarcely know his skin was affected.

The patient is an intelligent youth, with dark brown hair and dark grey eyes. When first admitted his condition was as follows:

Head.—The skin of both cheeks and nose presents the appearance of lupus vulgaris. There are a few tubercles, with scaly discs and crusts, and between these a number of small pitted scars and larger smooth white superficial cicatrices. The skin of the nose is tightly stretched by the contraction

F. E. Burgess, del

Mintern Bros. Chromo lith.

Dr. Stephen Mackenzie's case of Lupus-psoriasis.

it has undergone. The septum is slightly invaded by the disease. Both ears are markedly affected, being deformed by the cicatrised and contracted skin, which over the helix is covered with scabs and scales. The eruption extends a little behind the ears. There are a few scattered patches on the forehead and chin, and on each upper eyelid.

Trunk.—On the upper part of chest in front (Plate VII), somewhat central in position, are scattered irregularly circular scaly patches and discs. They are of a reddish-brown colour with paler or whitish depressed centres. The colour does not disappear on pressure. Some of the discs have run together into irregular patches. On the surface of the patches are a few fine scales, and the area affected feels rough when the fingers are passed over it. Among the discs are small, superficial, dull red scars. Some of the discs can be detached. They seem to be most adherent by their circumference. When removed a small red scar is left, deepest at its centre. Posteriorly, the skin between and on the shoulders is similarly, but more extensively, affected, and the scars are more distinct. At the lower part of the back the eruption is very profuse. It has the same general characters, and the cicatrices are well marked.

Upper extremities.—The inner aspects are entirely free from eruption. The outer aspect of both arms and forearms is moderately thickly covered with eruption. In this position it is rather more raised, having a slight papular character. The papules have a few fine scales, and amongst them are dull reddish scars. The tips of the elbows are exempt. The hands, front and back, are free from eruption except at the terminal extremities of the ungual phalanges, where, both on the dorsal and palmar aspects, the skin is reddened, puckered, and in places scaly. The nails are unaffected.

Lower extremities.—The buttocks, both aspects of the thighs and legs, are scattered over with eruption similar to that on the chest. The scarring is very marked. There are a few spots on the dorsa of the feet and the extremities of the toes, slightly papular. The soles are free.

There is no glandular enlargement; no evidence of bone disease past or present. The thoracic and abdominal organs are healthy. Digestion is good. The urine natural.

The patient was at first ordered one drachm doses of citrate of potash, in infusion of gentian, three times a day. He was confined to bed, but no local treatment was adopted. The eruption improved somewhat whilst the patient was on this plan of treatment, especially that on the lower part of the

body. Sometimes the face itched a good deal; at other times it was quite free from irritation.

On Dec. 12 the ends of the fingers swelled, and he complained of pricking pain there.

On Dec. 22 he was ordered half-drachm doses of syrup of iodide of iron, with five drop-doses of liq. arsenicalis, three times a day.

At the end of January, whilst the eruption on the face and body was still improving, he had an attack of acute pharyngitis, lasting a few days.

On Feb. 6 he was attached by erysipelas of the right arm, originating from the inflammation around the nails of the first and second fingers. The attack was severe, and his life in some danger. By Feb. 25 he was entirely recovered from the erysipelas, was up and about, and his general health good.

The eruption of the trunk and extremities, though still present, had greatly improved, though presenting the same characters as on admission. The face had, however, broken out afresh, and discharged a slight amount of purulent matter. He was made an out-patient March 11, 1882.

On April 21 his condition was as follows:

Head.—Face much cleaner. A few tubercles can be seen and felt. There is no crust, and but few discs. No extension of area affected. No itching.

Trunk.—In front a number of superficial dull red scars, in the situation of the former eruption. The shoulders are extensively scarred with both dull-red coloured and white cicatrices. At the lower part of back (loins) the skin is quite free from scaly eruption, but there are a large number of dull-red coloured cicatrices. Isolated ones look like recent small-pox scars. A number have coalesced into large irregular patches, in which furrows, transverse or oblique, according to the natural direction of the folds of the skin, are very visible.

Upper extremities.—Almost free from discs and scales, but there are numerous scars in the situation of the former eruption. The more recent ones have some circumferential redness. Some are pitted and of a dull-red colour. On the forearms, on the outer aspects, are a number of somewhat bright red, slightly elevated patches, with very slight scale. There is one large patch, larger than a sixpenny piece, over the prominent edge of the ulna of the left arm, but the elbow tips are free. There are also a number of very superficial scars. The skin of the ends of the fingers is red, rough, and cracked, on both aspects, and a little swollen and red around the nails.

Lower extremities.—On the buttocks and outer parts of the thighs are a few papules with fine scales, one or two discs, and some scars; the latter not nearly so pronounced as on the back. There are a few indistinct papules and scars on the fronts, outer aspects, and backs of legs. The inner aspects of legs are quite free from eruption, present or past. There is no eruption on the knees, but there are a number of circular white cicatrices in this position. On the dorsa of the feet are some scaly papules and scars. The dorsal aspect of the toes and nails are free. On the plantar aspect of the toes and heels the skin is thick, rough, and cracked.

The points to which attention is desired to be directed are the following:

The eruption on the face is quite characteristically lupus.

The eruption on the trunk and extremities resembles psoriasis in its scaly character and its symmetrical distribution, but unlike psoriasis it leaves scars. Hence, the term lupus-psoriasis (scrofulosus), suggested by Mr. Jonathan Hutchinson, appears to me appropriate in suggesting its real nature, and in characterising its distribution. The condition is somewhat rare, and, as far as I am aware, has only been described by Mr. Hutchinson.*

P.S.—A sister, suffering from psoriasis, has since been seen. This strengthens, in my opinion, a belief that the affection was psoriasis modified by the lupus dyscrasia, from which the patient was suffering at the time of its occurrence.

XLVII.—*Report of the Committee upon a Case of doubtful Chromidrosis, shown to the Clinical Society by Dr. Colcott Fox. Read April* 4, 1882.

THE Committee do not deem it necessary to go into the history of the case, beyond stating that the patient, was a woman, æt. 21, and was said to have been always delicate and subject to much illness, very excitable, and had two distinct hysterical attacks. She said that the discoloration was noticed about four months previously, after she had suffered from sick headache for two months with frequent vomiting and diarrhœa, that the colour became gradually deeper and more extensive

* *Lectures on Clinical Surgery*, vol. i, p. 298.

until it reached the present condition, and that at first she could not remove it, but that she had been able to do so since it became so black. The Committee found a deep black coloration beneath both eyes, as far as the malar prominences, and over the lower half of the upper lids; a band, half an inch wide, passed across the root of the nose, connecting the two sides. The margins were sharply defined, and the pigment was black, powdery, and rather glistening; its very appearance strongly suggestive of imposture.

The patient having been admitted into University College Hospital, under Dr. Crocker, was at first placed under partial observation only, the sister and nurse of the ward being told to watch her, but in such a way as not to excite her suspicion, in order that the pigment might be collected, and the mode of its development observed. The pigment was collected by wiping it off with gun cotton, which was preserved with the intention of dissolving the cotton in spirit and ether, leaving the pigment for further observation. Some of the pigment was scraped off, washed with ether and chloroform, and examined microscopically; it was seen to consist of well-defined angular particles, a drawing of which the Committee submit to the Society. The urine was repeatedly tested for indican by Mr. Waugh, the clinical clerk of the case, but only normal amounts were obtained.

It was soon found that the pigment, if removed, would appear in its fullest intensity within an hour, if the patient was not under observation, but no one ever saw it appearing. It came out usually in the night.

The following tests were then applied:—The face having been thoroughly cleansed, a piece of gutta-percha tissue was fastened over the left eye with collodion. At 11 A.M. the pigment reappeared only on the uncovered eye, and at 4 P.M. was profuse on that side. One quarter grain of pilocarpine was then injected into the left side of the neck, in two portions, within ten minutes of each other. Three minutes after the second injection the neck and face flushed, with slight moisture, and in five minutes there were small beads of perspiration about the roots of the hair, but only moisture perceptible to the touch on the face. After twenty-three minutes, the gutta percha tissue was removed from the left orbit, and here there was profuse perspiration, but no pigment; patient was now pale, had some salivation, felt sick, and shortly vomited slightly. She was placed in bed and watched continuously by a nurse for two hours, up to which

time no pigment had appeared, though the skin was perspiring moderately. She had thus been altogether four hours under observation without any pigment making its appearance, a longer period of freedom than she had ever had before. A quarter of an hour later—the nurse meanwhile having left the ward—the pigmentation was there in its full intensity. Three days later, without any warning, she was given a bath, and whilst in it her clothes were searched, and some lumps of black lead were found in her pocket. After the bath she was taken to another ward, placed in bed and watched continuously for twenty-six hours; no pigment appeared. She was then told that the imposture was detected, and, after some hesitation, signed a confession on condition that her mother was not told, promising not to repeat her imposture. She remained twenty-four hours longer in the hospital, until the friends came for her, and though no notice was taken of her, it need scarcely be added that the pigment did not reappear.

Although, as far as this case was concerned, the result was thus conclusive, the Committee felt that more evidence was wanted upon the whole question, and Dr. Colcott Fox kindly placed at their disposal the case recorded by him in the last volume of the 'Transactions,' with a very good portrait of the girl. This case was admitted into University College Hospital on January 9, 1882. Her age is twenty years, and since she was last under the observation of Dr. Fox, she has been better in every way until the middle of November, 1881, when she gradually relapsed into her old state, with headache, constipation, irregular menstruation, &c. Her mistress notices that when her general health improves, the pigmentation almost or quite disappears, except just before her periods.

The pigmentation, on admission, was less than that depicted in the drawing in the 'Transactions.' All that the Committee have to add to the careful description of Dr. Colcott Fox is that the patient is certainly less developed mentally than an average girl of her age and station, and though, perhaps, part of this may be largely ascribed to her being totally uneducated, on account of her deafness, still the fact remains that she is intellectually feeble, though she is a good, but slow needlewoman, and takes pains with her personal appearance, she is utterly apathetic as to what is going on around her, and her manner is not at all suggestive of hysteria. With regard to the pigment, it is not confined to the orbit, but is found in a decided, though minor, degree in the axillary regions extending for two inches beyond the border of the

anterior fold, in the umbilicus, and slightly in the groins and popliteal spaces. Upon close examination, the pigment appears to be mixed up with sebum, and can be scraped off with the edge of a knife in small flakes. In the axilla and umbilicus it can be very distinctly seen at the mouth of the hair follicles; it is wiped off with difficulty with dry gun cotton, but is easily removed on moistening it with spirits of chloroform. Its hue is that of sepia. Under the microscope, it was found to be nearly all mixed up with epithelium, the pigment consisting of granules impregnating the epithelial scales. There were also a few comparatively large, somewhat angular particles to be seen, but as these were not seen in scrapings from the umbilicus, and the patient is only allowed to wash the lower part of her face, they may be deposited from the atmosphere. The pigmentation is always very gradual in its reappearance after removal, taking several days to get decidedly black, and it tends to accumulate in the sulci of the natural folds and at the orifices of the hair follicles in the axillæ; both are features which have been observed in previous cases. A few comedones were to be seen in the orbital region after the removal of the pigment.

The intensity of the coloration was certainly connected with the state of the bowels, which were almost always constipated, unless aperients or enemata were given. After a free action of the bowels the pigment diminished. The patient had two catamenial periods while in the hospital; a diminution of pigmentation was observed after the flow, but no note was made immediately before them. The following tests were applied: A piece of muslin was fastened round the orbit, with adhesive plaster, for five days. On removal there was distinct pigmentation in the same limits as usual, but not so marked as on the uncovered eye. One evening the pigment was carefully washed off both orbits and axillæ, and she was put into the hot chamber of the Turkish bath of the hospital, at a temperature of 154° F. At the end of twenty-two minutes she was perspiring freely, and there was distinct though scanty pigmentation. The pigment was rubbed off the left orbit and in eight minutes reappeared, but was much less than on the untouched right eye. In thirty-seven minutes the colour was very distinct and was rather sharply defined, the skin of the affected area was of a deep dusky red hue before the pigmentation appeared. In the axillæ the pigment was only just perceptible. The next day the colour had not altered perceptibly from the previous night. A pilocarpine injection was given at a time

when the pigment took several days for any marked development, and with negative results as regards pigment, and only moderate sweating ensued. The Committee do not regard the negative result as, under the circumstances, of any value.

On the other hand, the Turkish bath trial was conclusive to the minds of all present as to the genuineness of the case, and is corroborated by the number and character of the places of pigment-production, the general behaviour of the patient, and properties of the discoloration.

The Committee are of opinion that the sebaceous glands are, in this case, involved in the morbid process (without venturing upon a decided opinion as to its precise nature.)

The case appears to resemble those described by Wilson and Neligan as steatorrhœa nigricans. From the evidence obtained in this and a certain number of the recorded cases, the Committee are of opinion:

1. That chromidrosis has an undoubted existence as a genuine affection.

2. That every case must be judged upon its own merits, as the disease is frequently simulated.

3. As a reason for such a peculiar form of simulation, the Committee would suggest: that in women subject to headaches a dark hue under the eyes is not unfrequently observed, and this exciting the attention and remarks of the friends, the idea is suggested to the morbid mind of this class of patient to increase the sympathy by an artificial increase of the pigment.

4. The Committee desire to call special attention to a few cases where the development of the pigment was actually witnessed by medical men, many, if not all, of whose evidence it would be impossible to reject:

1. Dr. Duval's case of a captain of a frigate, æt. 48, in whom, on three occasions, Dr. Duval saw the pigment reappear after removal.

2. Mr. Teevan's case of a young lady, in which he saw the pigment appear and spread gradually across the eyelid, the whole of which became black in half an hour. This observation was repeated in company with the late Dr. Hodgkin, of Guy's Hospital, who corroborates all Mr. Teevan's statements.

3. Dr. Wynn Foot's case, where he witnessed a blue coloration appearing on the forehead while the patient, a girl, was in his consulting room.

The following clinical characters were observed concerning the pigment of the second (genuine) case. It was not dissolved

by chloroform or ether, nor was any colour imparted to them; in this respect it differs from ordinary animal indigo obtained from urine by the hydrochloric acid process.

With warm sulphuric acid, the Committee only obtained a bistre-brown halo in the vicinity of the matter containing the pigment.

The Committee therefore offer no opinion on the nature of the pigment, but doubt its being indigo. The Committee, in conclusion, desire to express their best thanks to Mr. Waugh, the clinical clerk of the cases whilst in University College Hospital, for his careful assistance and attention in the investigation.

JOHN CAVAFY.
STEPHEN MACKENZIE.
T. COLCOTT FOX.
H. RADCLIFFE CROCKER, *Hon. Sec.*

APPENDIX.

After the Committee had concluded their report a copious production of pigment occurred on March 25 in the groins, a short distance down the thighs and lower part of the abdomen up to the umbilicus, and in the axillæ, very intense at the groins and umbilicus and axillæ; the pigment was more powdery looking than it had ever been before, and the whole affected region had a very grimy aspect. The orbits were only moderately pigmented. The patient had shown no special symptoms immediately preceding the outbreak. A fortnight previously she had some intestinal catarrh from the constipation, but this had been recovered from ten days ago. The pigment continued to come out for several days, but was not quite so abundant on March 30. At this date the pigment was carefully washed off, and half a grain of pilocarpine injected beneath the skin of the abdomen; in two minutes the pulse was 102 and the face flushed, sweating began in seven minutes, and in twelve was free over the abdomen, and about three ounces of urine were passed. It was not until an hour after the injection that any pigmentation appeared, and then Mr. Waugh saw slight pigmentation round the eyes and in the groins. After that she was observed at intervals of a quarter of an hour, and the coloration increased in the orbits and groins and became very marked, but none in the axilla. It increased up to one hour and three quarters after the injection; no increase took

place after this, and there was scarcely any more even the next day.

All through the case very little urine could be obtained, and to ascertain the exact amount, as well as to observe the pigment which had diminished considerably, at 9 o'clock on the morning of April 11 the patient was given a bath, fresh clothing was put on her, and she was taken to another ward; four ounces of urine were drawn off, and she was watched continuously by nurses for twenty-four hours; at the end of that time fifteen ounces of urine were drawn off. Pigment had come out slightly round the orbits, but none to speak of in the groins. This urine yielded more indican than had ever before been obtained. The quantity of urea was about normal, considering the perfect rest she was in. All the members of the Committee saw the copious excretion of the pigment on the abdomen, but I am alone responsible for this appendix.

H. Radcliffe Crocker.

XLVIII.—*Report of a Committee of the Society nominated October* 24, 1879, *to investigate the Causes, Consequences, and Treatment of Hyperpyrexia in Rheumatic Fever and other Acute Febrile Diseases. Read May* 26, 1882.

YOUR Committee desire at the outset to express their regret at the unavoidable delay that has occurred in the presentation of this Report. The wide extent of the subject to be investigated may be urged in part as a plea on behalf of this delay, together with their desire to have cases under observation in which the phenomenon of hyperpyrexia was presented. Their intention was to inquire in this way into the conditions under which hyperpyrexia developed in acute rheumatism, leaving the further prosecution of the subject in its wider bearings until the rheumatic inquiry was completed. In this they have only partially succeeded, for, notwithstanding the lapse of upwards of two years since the constitution of the Committee, very few cases of the kind have come under their personal notice. Feeling, however, that further delay would lead to misconceptions as to the work they had already accomplished, the Committee decided to lay before the Society these

facts concerning rheumatic hyperpyrexia that they have collected from various sources, and to incorporate them in a Report which can only be considered as preliminary to a more extended inquiry.

The facts upon which this Report is based are the outcome of a detailed analysis of sixty-seven cases of acute rheumatism marked by hyperpyrexia,* or by symptoms which, in the majority of cases, are associated with that condition. Most of the cases have been collected from hospital records, and they include a few only that have been published; but the Committee have not attempted (in the present Report) any study of the considerable literature of the subject. The period during which these cases occurred is, with few exceptions, confined within the ten years, 1870 to 1879 inclusive (see Appendix B).

In considering these cases it became evident that they fell into three distinct categories in regard to their type or pyrexial tendency, and it was therefore deemed desirable to adopt a somewhat arbitrary but convenient classification which should denote the leading features of difference and define the condition. The classification is as follows:

Class I.—Cases of undoubted hyperpyrexia, with an elevation of temperature to 106° and above. Under this class forty-seven cases are included.

Class II.—Cases showing a marked tendency to high range of temperature, viz. 104°, continued and persistent. Under this class seventeen cases are included.

Class III.—Cases with the symptoms well marked, characterising usually the hyperpyrexial cases, but without marked excess in temperature. Under this class three cases are included.

The Committee have investigated these cases in the following way:—1st. By comparison with ordinary cases of acute rheumatism, in order to learn if cases which exhibit hyperpyrexia present any other clinical differences. 2nd. By a more precise analysis of cases of hyperpyrexia and their treatment; and, lastly, they bring forward the general conclusions to which this inquiry led them.

* It should be stated that the larger number of these cases are unpublished, and it has not been deemed necessary to include in the analysis many published cases which form so important and valuable a part of the literature of the subject. The following may be especially indicated:

Wilson Fox, *On the Treatment of Hyperpyrexia.* Macmillan: London, 1871.

Sydney Ringer, *Medical Times and Gazette*, 1867, vol. ii, p. 378.

H. Weber, *Clin. Soc. Trans.*, vol. i, p. 21; vol. v, p. 136, where will be found numerous bibliographical references.

W. M. Ord, "Baths in Hyperpyrexia," *St. Thomas's Hospital Reports*, 1879.

PART I.—*Comparison of hyperpyrexial cases with those of acute rheumatism generally.*

The first point to be considered is whether, apart from the phenomenon of hyperpyrexia or of symptoms directly related to it, these cases exhibited any notable features of difference from the generality of cases of rheumatic fever; whether, that is, they differed in any way as to their etiology, course, complications, or issue from the latter. A statistical comparison has therefore been made by utilising the returns of 1300 cases of acute and subacute rheumatism contained in the Registrar's Reports of the Middlesex Hospital* for the years corresponding to those in which the hyperpyrexial cases mainly occurred. This number may be considered to afford a sufficiently wide basis of comparison. It includes twenty-two cases of hyperpyrexia.

The comparison was made under the following heads:—(*a*) Time of occurrence, season of year. (*b*) Sex. (*c*) Age. (*d*) Occupation. (*e*) Existence of family tendency to rheumatism. (*f*) The number of the attack for which the patient came under treatment. (*g*) Complications. (*h*) Mortality. The statistics on each of these heads are given in Appendix B. The conclusions derived from them may be stated here.

(*a*) Of the sixty-five cases of rheumatic fever with hyperpyrexia to which a date is assigned, and occurring in the period 1869 to 1880, it will be seen that the greater number occurred in the years 1873 to 1877 (inclusive), there being in

1873	7 cases.
1874	17 „
1875	11 „
1876	12 „
1877	6 „

i.e. fifty-three, or 81·5 per cent. of the total number occurred in these five years.

It is noteworthy that the experience of the hospital above named shows also a decided preponderance in the total number of cases of acute and subacute rheumatism treated during the same period, viz.:

1873	142 cases.
1874	183 „
1875	168 „
1876	137 „
1877	148 „

* These reports were compiled by Dr. John Murray (1870), Dr. R. King (1871, 1872), Dr. Coupland (1873, 1874), Dr. H. Humphreys (1875, 1876), Dr. D. W. Finlay (1877, 1878, 1879).

the estimated annual average for the decade being about 130 cases. But the increase in cases of hyperpyrexia was large out of all proportion to the increase of acute rheumatism. Thus in the four consecutive years, 1873 to 1876, our tables give forty-seven cases of hyperpyrexia, being nearly 70 per cent. of the total number collected, whereas the number of cases of rheumatism in the Middlesex Hospital during these four years was 630, or nearly 49 per cent. of the decennial total.*

A question of some interest, which may have an important bearing upon the occurrence of hyperpyrexia, is, whether the cases showing this phenomenon prevail more at one season of the year rather than at another, and whether, if this be the fact, it coincides with a similar increase in acute rheumatism generally. Such a comparison (given in detail in Appendix B) shows a striking difference in this respect, viz. that in the months of June and July, when cases of rheumatic fever were least prevalent, those of hyperpyrexia were remarkably numerous, viz. twenty-two out of sixty-four (dated cases), *i.e.* 34 per cent., or twice the proportion which should fall to these months were the cases equally distributed throughout the year. The estimated average of rheumatism in these two months is below that of other months, viz. about 15 per cent. of the annual total. The same difference is shown by grouping the figures according to the *season* of the year:

	Cases of hyperpyrexia.	Of rheumatism.
Spring (March, April, May)	11 or 17 %	306 or 23 %
Summer (June, July, August)	25 „ 39 %	296† „ 22 %
Autumn (September, October, November)	18 „ 28 %	371 „ 28 %
Winter (December, January, February)	10 „ 16 %	365 „ 27 %

In other words, cases of acute rheumatism generally are least prevalent in the summer months and most prevalent in the winter months; those marked by hyperpyrexia prevail most in the summer, least in the winter.

(*b*) Passing now to a comparison between the cases in which hyperpyrexia was manifested and those of acute rheumatism generally, we take first that of the *sex* of the subject attacked, and we find a marked preponderance of males over females in

* It may be a debateable question whether the introduction of salicylic acid in the treatment of rheumatism, which occurred about this time, has had any influence in the reduction of the number of cases in which hyperpyrexia has been observed. But we would call attention to the fact that hyperpyrexia as a complication of acute rheumatism was apparently as infrequent prior to 1873 as it has been since 1877.

† The *actual* number was 258, the hospital being closed during July and August in the years 1872 and 1878, and the above figures represent the estimated total according to the averages for these months in other years.

these cases, there being forty-three of the former to twenty-four of the latter sex in the series before us; whereas, in the 1300 cases of rheumatism the sexes are nearly equally divided, viz. 654 males and 646 females, or, on a percentage comparison,

Males .	64·2 %	with hyperpyrexia	50·3 %	in rheumatism generally.
Females	35·8 %	"	49·7 %	"

(*c*) The *age* at which hyperpyrexial rheumatism mostly occurs corresponds fairly well with that of ordinary rheumatism. None of the hyperpyrexial cases were under the age of ten years, and only 1·8 per cent of the 1300 rheumatic cases. Patients aged ten, and between that and twenty years, formed 19·4 per cent. of the hyperpyrexial, and 34·6 per cent. of the other group, the maximum proclivity being in the next decade, viz. 43·3 per cent. of the hyperpyrexia cases, and 39·1 of rheumatism generally.

(*d*) A table showing the *occupations* of those attacked with hyperpyrexia is given in Appendix B. No deductions can be drawn from it as to the influence of occupation upon this complication, and no comparison has been attempted between these cases and those of the general series in this respect. The table shows a very considerable variety of occupations, some sedentary, others active and laborious, but we cannot say that any particular habits or conditions of life predispose to the hyperpyrexia. It suffices to note that in sixty-seven cases there were thirty-three different occupations, the most common being that of domestic service.

(*e*) The next question entertained was whether these subjects presented more than an average proclivity to rheumatism, whether, that is, in them there was more marked evidence of an hereditary tendency to the disease than in the generality. After making due allowance for the necessary imperfections that must attach to any precise analysis of family histories, we feel bound to conclude that in this respect cases of acute rheumatism marked by hyperpyrexia do not show any strongly accentuated differences from the generality of cases. In only twenty-three was any family history of rheumatism and rheumatic fever obtained, or in 34·4 per cent. of the total, and in the 1300 cases of rheumatism a family predisposition is recorded in 355 cases, or 27·3 per cent., a difference under the circumstances too slight to lay any stress upon.

(*f*) Pursuing the inquiry as to whether cases presenting hyperpyrexia furnish other features of difference than that phenomenon itself, we have next to ascertain whether hyper-

pyrexia occurs disproportionately more frequently amongst subjects attacked with rheumatism for the first time. In nine out of the sixty-seven cases the number of the attacks from which the patient suffered is not recorded. Dealing with the remaining fifty-eight cases we find that thirty-seven, or 64 per cent., were "first attacks," sixteen cases, or 27·5 per cent., were "second attacks," and five cases, or 8·5 per cent., were "third attacks;" whereas in 1281 cases of acute and subacute rheumatism, where the number of the attack is recorded, 52·7 per cent. were first, 30·5 per cent. second, and 10·7 per cent. third attacks. Thus none of the patients exhibited hyperpyrexia in any attack after the third, no fewer than 91·5 per cent. were in first and second, and upwards of two-thirds of these in the former. Of rheumatism generally, the number of cases treated in the first and second attacks was 83·2 per cent., or 52·7 per cent. for the former. In other words, there is an undue proclivity for hyperpyrexia to occur in a primary attack of acute rheumatism.

(*g*) We pass now to consider one of the most important questions raised by the analysis of these cases. The various complications which are liable to arise in acute rheumatism may be thought to influence the development of hyperpyrexia. This is especially probable with regard to the visceral inflammations, and an inquiry which should ignore their possible influence would be very incomplete. Indeed, it has been held before now, and long before the fact of hyperpyrexia was ascertained, that one complication, viz. pericarditis, was liable to give rise to cerebral symptoms of a severe type, often with fatal termination. Our analysis of these sixty-seven cases enables us to say that such complications are not necessarily present in association with hyperpyrexia. In uncomplicated cases the excess in temperature stands alone, and no light has been thrown upon its causation, either from clinical observation or the post-mortem records of such cases. In nine out of the sixty-seven cases—six of which were fatal—no complications were present.

At the same time it will be seen that, as compared with the statistics of rheumatic fever generally, those cases of hyperpyrexia which *were* complicated by manifest lesions show a remarkable predominance of pericarditis, and an excess above the average of pleurisy, pneumonia, and albuminuria; the last-named being possibly due to the high degree of pyrexia. Thus, among the hyperpyrexial cases, cardiac complications (pericarditis, endocarditis, or both) occurred in

forty-six cases, or 68 per cent. Pericarditis occurred in 56 per cent.; in rheumatism generally, pericarditis was met with in about one half this per centage, viz. 28 per cent. Endocarditis (recent and old) again occurred in the hyperpyrexia group in 40 per cent.; in the general group in 44·4 per cent. The complication of pleurisy occurred in the former group in 25 per cent., in the latter in only 3 per cent; pneumonia complicated the former group in 12 per cent., the latter in 7·8 per cent. Too much significance must not be attached to these statistics, owing to the small number of cases of hyperpyrexia with which we are dealing; but the disproportion in the occurrence of pericarditis seems certainly remarkable.

It will be seen in the Appendix that the number of cases in which diarrhœa and sorethroat were present has also been reckoned, but as the reports from which the rheumatic series was compiled did not direct special attention to these complications, unless they were very marked, it has not been considered desirable to attempt a comparison.

Albuminuria was present in fourteen cases, or 20 per cent. of the hyperpyrexial series. It was associated with cardiac and pulmonary complications in six cases, with cardiac only in four, and occurred as the sole complication in two cases.

Before leaving this branch of the subject it may be well to note that, apparently of late years, the complication of pericarditis has become notably less frequent in acute rheumatism than formerly; the number of cases so complicated, as recorded in these hospital reports, falling from sixty-two in the year 1875 to eight in the year 1879, or taking biennial periods:

1870—71	Of rheumatism	220	cases.	Of pericarditis	77
1872—73	"	249	"	"	71
1874—75	"	361	"	"	116
1876—77	"	285	"	"	68
1878—79	"	195	"	"	35

Endocardial complications show no similar decrease in frequency, but rather the reverse.

This fact, if it be substantial, is interesting in connection with the admitted diminution of cases of hyperpyrexia during the last four years.

(*h*) Finally, we have to consider the mortality of cases which are marked by hyperpyrexia. As may be expected this is naturally very high, very nearly one half the number dying. Of the sixty-seven cases of hyperpyrexia, thirty-four recovered and thirty-three died, or 49·2 per cent.

In contrasting the fatal cases with those which recovered,

it is seen that complications are more frequent in the latter than the former. Thus of the fatal cases there were six, or about 18 per cent., uncomplicated; of the non-fatal three, or about 9 per cent., uncomplicated. In comparing the mortality of hyperpyrexia with that of rheumatic fever generally, we find the latter to have a death-rate of 2·6 per cent., or a total of thirty-four out of 1300 cases. Nearly one third of these cases (viz. ten) were cases of hyperpyrexia, so that, excluding them, the death-rate is reduced to twenty-four out of 1290, or only 1·8 per cent.

PART II.—*Hyperpyrexia in acute rheumatism.*

This portion of the Report will deal solely with the symptom of hyperpyrexia in reference to the class of cases in which it occurs, the concomitant clinical conditions, the morbid appearances of fatal cases, the varieties of the hyperpyrexial manifestation and its duration, its influence upon mortality, and lastly, the therapeutic measures best calculated to combat it. As above stated, it is based upon an analysis of sixty-seven cases. Many of the points which in the aggregate compose the natural history of these cases have been dwelt upon in the preceding section of this Report. We have there already analysed the facts supplied by these cases as bearing upon the prevalence of hyperpyrexia and its predominance at particular seasons of the year; upon the sex, age, and occupations of those who presented this symptom, upon the number of the attack of acute rheumatism in the individual in whom this phenomenon arose, upon the complications that most frequently occur with it, and upon the general mortality of these cases. All these points have been contrasted with the same class of facts as presented in the history of acute rheumatism generally. But to complete the analysis, and to present as full an account of the conditions which accompany the onset of hyperpyrexia, it is necessary to inquire into the other questions enumerated above.

Previous history of cases.—Information respecting a previous history of rheumatism has already been given, and the only other diseases specially inquired into in these cases for the purposes of this Report were chorea and scarlet fever. The figures under each of these heads are very meagre, only two cases having a history of previous chorea, and but six one of scarlet fever.

In respect to alcoholism we find that in only eleven of our cases is there any history of "drink," which in some amounted to admitted intemperance, but in others was only feebly established.

So far as this inquiry goes then there are hardly any data of importance in the personal histories of these subjects which could point to the existence of influences other than those common to a similar number of cases of rheumatism not marked by hyperpyrexia.

Features of the rheumatic attack in which hyperpyrexia occurred.—Most writers on the subject of rheumatic hyperpyrexia are agreed upon the occurrence of certain prodromata, namely, abrupt disappearance of articular pain, cessation of sweating, and the appearance of cerebral symptoms, varying from merely altered demeanour to marked delirium. With a view, if possible, to determine the importance of such signs, we have analysed the cases before us.

Joint affection.—In twenty-two cases, or in about one third, the records dealt with gave no information upon the question whether the articular pains did or did not subside before the onset of the hyperpyrexia. Of the remainder—forty-five cases—the notes point to the persistence of pains, either continued or variable, in no fewer than twenty cases. In twenty-five cases the pains subsided before the onset of the hyperpyrexia, to return in fourteen of the cases after this condition had passed away.

Condition of skin.—The notes before us give no information as to the cutaneous condition during the continuance of hyperpyrexia in fourteen out of the sixty-seven cases. Of the remainder sweating is noted in forty cases, with sudamina in twenty-two; in one case the skin is noted as "moist," and in only twelve is it distinctly stated to be dry. These results are not therefore in accordance with the general impression that a dry, unperspiring skin is an invariable concomitant of rheumatic hyperpyrexia; such a condition of skin being present in not much more than one fourth of the cases.

Nervous symptoms.—These are very numerous and varied, and we do not think that the present series of cases has added many to the list of those already known and described. Those that are noted in this series include, according to their frequency, the following:—delirium (all phases), insomnia, restlessness, muscular tremors, involuntary discharges, subsultus tendinum, coma (a late symptom), headache, tremor of tongue, deafness, tonic spasms (in two cases of tetaniform

character), risus sardonicus, convulsions, floccitatio, tinnitus aurium, giddiness, drowsiness, vomiting, silliness of manner, fearfulness, hesitating speech, chorea, and hyperæsthesia.*

In the Appendix will be found a statement of the number of cases in which these several symptoms were observed; but too much stress must not be laid on these figures as indicating the absolute frequency, for many of the less marked signs, especially those summed up as alteration in or strangeness of demeanour, although often of very great import, may easily escape record. Attention will therefore be directed in this report solely to the symptom of *delirium* and its significance.

Delirium was noted in fifty-seven cases, its absence recorded in eight; and in two cases of the series no mention has been made either of its presence or absence.

Cases in which delirium was present.—The main point of interest being to ascertain what relation this symptom bore to the hyperpyrexia, we have analysed the cases in groups, according as the delirium preceded the onset † of the hyperpyrexia, arose simultaneously with it, or definitely succeeded to it.

In four cases in which the delirium is noted, its onset, with respect to the onset of hyperpyrexia, is not stated. That leaves fifty-three cases, which may be thus subdivided:

A.	Delirium	preceded onset	of hyperpyrexia	in 24	cases.
B.	„	accompanied	„	19	„
C.	„	followed	„	10	„

It will be convenient, in the first place, to consider each of these groups separately:

Group A.—In six cases the appearance of delirium preceded the onset of hyperpyrexia by an interval of *one* day, in six cases by *two* days, in two cases by *three* days, and in *one* case by *four, six, seven,* and *twelve* days respectively. Of the remaining six cases, the exact period of onset is not stated.

The *date of onset* of the delirium, when ascertained, varied from the fourth to the twenty-fifth day of the rheumatic attack, that of the hyperpyrexia in these cases, from the sixth to the twenty-ninth day.

The *duration* of delirium varied from three to thirty days; the latter only in one exceptional case (No. 28). Where the hyperpyrexia lasted twenty-nine days, sometimes, but not invariably, the delirium was continuous with the high

* A remarkable increase in the flow of urine with diminution in its specific gravity, and often deepening of its colour, has been observed in some other cases.

† By "onset" of hyperpyrexia is meant as a rule, throughout this Report, the period when the temperature attained 104° with tendency to further rise.

temperature, but this point will be again alluded to in speaking of the subsidence of delirium. Unfortunately the records are often imperfect in omitting to state precisely when the delirium did cease in those cases which were not fatal.

In relation to the type of hyperpyrexia, those twenty-four cases in which delirium preceded that symptom give eighteen cases under Class I, *i.e.* with maximum temperatures ranging from 106·2° to 110·3°; four cases under Class II, with maxima varying from 104° to 105·6°; and two cases under Class III, with maxima of 102·8° and 104° respectively.

Lastly, this group gives nineteen fatal cases and five recoveries; a proportion denoting a marked degree of severity in cases where delirium is an early symptom.

Group B.—In these nineteen cases the delirium and high temperature arose seemingly *pari passu*. Their date of onset varied from the fifth to the twentieth day of the attack. The duration of delirium ranging from twelve hours to seventeen days; the last being exceptional (No. 24) and far exceeding the duration of the hyperpyrexia.

Of these cases, as regards the degree of hyperpyrexia, fifteen fall into Class I, with maximum temperatures ranging from 106 to 111·4°; and four into Class II, with maxima of 105° to 105·8°.

Although the degree of hyperpyrexia present in these cases does not differ much proportionally from that given in Group A, the mortality is remarkably lower in this group, there being but six deaths to thirteen recoveries.

Group C.—Dealing in a like manner with the ten cases in which delirium was noticed first *after* the onset of hyperpyrexia, it is seen that the date of onset of the delirium is from the sixth to the twenty-ninth day, that of the hyperpyrexia being from the fourth to the twenty-sixth day. In five of the cases, or one half, there is a difference of *one* day between these dates, in three cases a difference of *three* days, and in one of *five* and of *six* days respectively.

The duration of the delirium when noticed was from one to nine days; of the hyperpyrexia from two days to three weeks (No. 4).

Eight of the cases are included under Class I, the maximum temperature ranging from 106° to 109·6°, and two cases under Class II with maxima of 105° to 105·8° respectively.

Three of these cases were fatal and seven recovered. Taking all these groups together to ascertain whether there was any significance to be attached to the early *subsidence* of

delirium as regards the severity of the case, it is seen that in

	Recovered.	Died.
11 cases where delirium subsided before the hyperpyrexial period came to a term	6	5
15 cases where delirium subsided coincidently with hyperpyrexia	7	8
10 cases where delirium subsided after hyperpyrexia	10	2

In many cases the subsidence of the delirium is not noted, and as out of this number (twenty-one) there were no fewer than sixteen deaths, it may be assumed that in very many of them the delirium practically came to an end with the fever itself. Much, therefore, cannot be gleaned as to the prognostic importance of early subsidence of this symptom.

It is difficult to say how much importance should be attached to delirium as a mark of the severity of the disease. It is not always proportionately related to the degree of pyrexia; for although in the eight cases in which the absence of delirium was noted the highest temperature was not above 107°, delirium and death occurred in some of the cases of comparatively mild hyperpyrexia. As regards its connexion with a fatal result it may be observed that there were thirty-one deaths in the fifty-seven cases in which delirium was noted, and two deaths in the eight cases where it was absent.

The hyperpyrexia.—We have now to analyse the phenomenon of hyperpyrexia itself in the clinical features presented by these sixty-seven cases. Bearing in mind the definition of the condition and the subdivision of the cases given at the outset, the present portion of the Report will be simply a study of thermometry. It will be seen how varied the hyperpyrexia is, not only in its intensity and duration, but in the manner and time of its appearance, and how fruitless would be the endeavour to discover laws which govern its cause. Thermometric curves of the condition show at a glance the capriciousness which is its characteristic feature. In some cases an abnormally high temperature, existing for days or hours, almost suddenly leaps to higher levels, in others a more gradual ascent takes place, in yet others there is a far more rapid rise from a comparatively mild and moderate pyrexia.

Are we then in a position to assert that there is such marked difference in the mode of onset of the hyperpyrexia and in its course as to enable a subdivision into types of hyperpyrexia to be established? To answer this question it is necessary to critically examine the temperature curves of a large number of cases.

A study of the temperature charts in forty-seven cases

(Nos. 1 to 25, and 27 to 48) enables us to discriminate at least five different types of the condition, as regards the mode of onset of the hyperpyrexia and the course taken by it. These subdivisions are, of necessity, somewhat arbitrary, and intermediate forms are met with which it is difficult to classify. However, when marked examples are taken, as in the charts appended to this Report, the division appears to have some reasonable basis in fact.

TYPE A.—*Temperature rising gradually for a few days and then suddenly culminating in a maximum by an exacerbation of several degrees.* Of this we have eleven examples, viz.:

CASE 3.—Admitted on 5th day of attack, temp. 102·2°; 6th day, temp. 103·2° to 104·4°; 7th day, temp. 104·4° to **108°**.

CASE 6.—Admitted on 7th day, temp. 102·8°; 8th day, temp. 102·8°; 9th day, temp. 102·2°; 10th day, temp. 102·8°; 11th day, temp. 104·6°; 12th day, temp. **107°**.

CASE 8.—Admitted on 7th day, temp. 101·8° (*v.* Plate VIII, fig. 1); 8th day, temp. 100·2°; 9th day, temp. 100·6°; 10th day, temp. 101·6°; 12th day, temp. 104·6°; 13th day, temp. 103·4°; 14th day, temp. 104° to 106°; 15th day, temp. 105·6° to 103·8°; 16th day, temp. 104·6° to 105°; 17th day, temp. 105·6° to **109·6°**.

On the 18th day it reached 105°; on the 19th 104·8°; and from 19th to 30th it ranged mainly between 101° and 103°, rising to 103·7° on the 30th and 104·2° on the 31st.

CASE 14.—Admitted on 6th day, temp. 101·4° to 102·6°; 7th day, temp. 101·6° to 102°; 8th day, temp. 101·2° to 103°; 9th day, temp. 102·4° to 104·8°; 10th day, temp. 103·6° to 105·6°; 11th day, temp. 105° to **106°**.

Treated by two baths on the 11th day, after which a gradual fall by lysis to the 20th day; and for six days following an irregular course, marked by exacerbations, to 103° and above, until on the 26th day it took a decided downward course to normal.

CASE 20.—Admitted on 8th day, temp. 101·8°; 9th day, temp. 102·4°; 10th day, temp. 103·6°; 11th day, temp. 104·8° to 105·6°; 12th day, temp. 103·2° to **105·9°**.

Treated by exposure, after which the temperature fell below 104°, and on the 14th day below 103°, reaching 99° on the 23rd. A relapse to 103° occurred on evening of 27th day and lasted a few days.

CASE 21.—Admitted on 8th day, temp. 102·2° to 101°; 9th day, temp. 99·4° to 102°; 10th day, temp. 104° to **106·4°**.

A bath was given, and from 11th to 21st the temperature ranged between 100° and 103°.

Case 30.—Admitted on 4th day, temp. 102°; 5th, 6th, 7th, and 8th days no record; 9th day, temp. 103·2°; 10th day, no record; 11th day, temp. 103·4° to 105°; 12th day, temp. 105° to **107°**.

A bath was given, and the range of temperature was afterwards below 101°.

Case 32.—Admitted on 10th day, temp. 104·3°; 11th day, temp. 102·8° to 103·4°; 12th day, temp. 104·6° to **108·5°**.

Death occurred at maximum temperature.

Case 34.—Admitted on 11th day, temp. 103·8° (*v.* Plate VIII, fig. 2); 12th day, temp. 103·8° to 104·2°; 13th day, temp. 104·4° to 110°.

Bath given. Death occurred six hours afterwards.

Case 40.—On the day of admission, temp. 103·8° to 104°; next day, temp. 105° to **109·8°**.

Death took place after five minutes immersion in a cold bath.

Case 46.—On the day of admission, temp. 101·4 to 99·6; 1st day after admission, temp. 100·8° to 101·2°; 2nd day, temp. 101·4 to 101·8°; 3rd day, temp. 101·2° to 103·4°; 4th day, temp. 101·6° to 103·2°; 5th day, temp. 102·8° to 104·2°; 6th day, temp. 104·8° to **107·4°**.

Bath given on this and following day (temp. 105·8°) and four days later (temp. 106°). After which the temperature ranged between 102° and 103° for four days, then fell to 100° and 101° for two days, and then to normal levels.

Type B.—*Temperature, after maintaining for one or more days a moderate level, suddenly rises to excessive heights.* Twelve cases fall under this category, which presents also transitional curves between this and the preceding type.

Case 5.—Admitted on the 22nd day, temp. 101·6°; 23rd day, temp. 100; 24th day, temp. 102° to 99·6°; 25th day, temp. **105·6°**.

After a bath the temperature fell to 101° and then to 99°, and reached an extreme subnormal level before death, which took place on the 32nd day.

Case 7.—Admitted on the 10th day (*v.* Plate VIII, fig. 3); 11th day, temp. 102·6°; 13th day, temp. 101·2° to 102·8°; 14th day, temp. 101·4° to 102·4°; 15th day, temp. 102·2° to **110°**.

A bath was given followed soon (temp. 106°) by wet pack, repeated at temp. 104·3°, but death occurred four and a half hours after the bath.

Fig. 1.

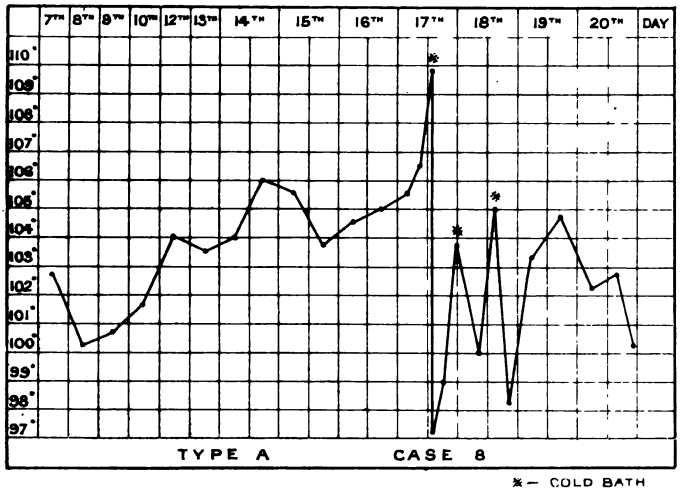


Fig. 2.

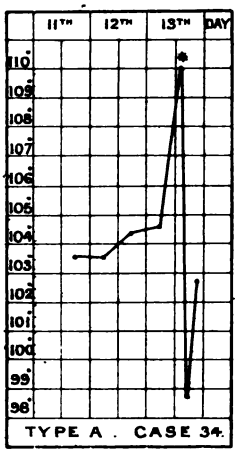


Fig. 3

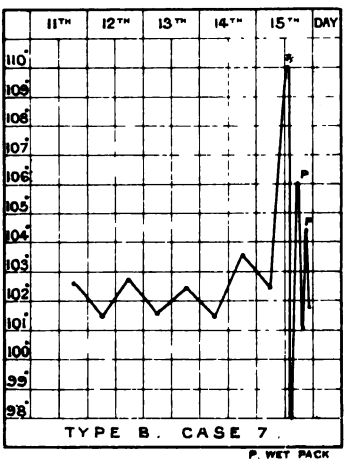
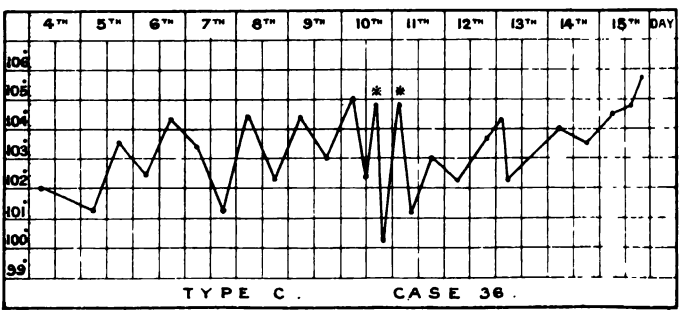


Fig. 4.



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Report of Committee on Rheumatic Hyperpyrexia.

CASE 11.—Admitted on the 6th day, temp. 103·5°; 7th day, temp. 103·2° to 102°; 8th day, temp. 103·7° to 103°; 9th day, temp. 104·8° to 102·2° to 104·7°; 10th day, temp. 104° to **108·5**.°

Fatal on the 10th day.

CASE 18.—Admitted on the 5th day, temp. 101·8°; 7th day, temp. 101; 10th day, temp. 101·6°; 13th day, temp. 99·4°; 14th day, temp. 100·2°; 16th day, temp. 104°; 17th day, temp. 102·4°; 18th day, temp. 102·8° to **106·1**°.

Bath given. Rise next day to 104·6°, then lysis to normal about 30th day.

CASE 22.—Admitted on the 8th day, temp. 101·4° to 102·6°; 9th day, temp. 102·4 to 101·2°; 10th day, temp. 102·2° to 101·6°; 11th day, temp. 102·2° to 102°; 12th day, temp. 102·2 to 102°; 13th day, temp. 102·6° to 101·8°; 14th day, temp. 101·4° to **105·8**°.

Cold affusion commenced, and repeated six times during next three days. Subsidence of temperature with large excursions until 22nd day, when a sudden fall took place from 104·5° to 99°, and thenceforth moderate pyrexia.

CASE 23.—Admitted on the 13th day, temp. 102·8°; 14th day, temp. 102·8° to 103°; 15th day, temp. 102° to 101°; 16th day, temp. 102° to **108**°.

Fatal on the 16th day.

CASE 24.—Admitted on the 6th day, temp. 102·5° to 100·2°; 7th day, temp. 100·3° to 102°; 8th day, temp. 101° to **105·4**°.

Bath given, and temperature ranged between 103° and 104° until the 14th day, when it rose from 103° to 106° and bath was repeated.

CASE 27.—Admitted on the 8th day, temp. 101°; 10th day, temp. 103·5° to 103°; 11th day, temp. 102·4°; 11th to 20th day, about 102°; 21st day, temp. 101·6° to 103·8°; 22nd day, temp. 103·8° to 104·2°; 23rd day, temp. 103·8°; 24th day, temp. 104·2° to 102°; 25th day, temp. 102·6° to 103·8°; 26th day, temp. 102·2° to 103·5°; 27th day, temp. 102° to 103·2°; 28th day, temp. 102·2° to 103·2°; 29th day, temp. 104·6° to **107·2**°.

Bath given and repeated six times within the next two days (at temperatures varying from 105·6° to 104·8°); a seventh bath given on 34th day (temp. 104·8°), and an eighth on the 35th (temp. 103·8°). After which the temperature only twice reached as high as 103°, and from the 38th day fell to 100° and 101°.

CASE 31.—Admitted on the 11th day, temp. 102° to 102·4°;

12th day, temp. 101·8° to 101·6°; 13th day, temp. 103·8° to 103·6°; 14th day, temp. 103·2° to 103·8°; 15th day, temp. 102·8° to 103·7°; 16th day, temp. **107·2°**.

Bath given and repeated the same day (temp. 107°), and again on 19th day (temp. 106·4°). After which fall of temperature to 104° and 103°, death taking place on the 21st day.

Case 35.—Admitted on the 5th day, temp. 103°; 6th day, temp. 103·4° to 102·8°; 7th day, temp. 102·2° to 102·6°; 8th day, temp. 103·5° to **106·6°**.

Bath given and repeated twice on 9th day (at 105° to 104°), twice on 10th day (103·8° and 103·2°), twice on 11th day (104·2° and 105·8°), twice on 12th day (104·3° and 103·6°), five times on the 13th day (103·7°, 103·6°, 104·2°, 104°, and 104·2°), twice on the 14th day (104° and 104·4°), *i.e.* sixteen baths in all. After this the temperature rose on two occasions to 103°, and after the 17th day it fell below 100°.

Case 37.—Admitted on the 6th day, temp. 101·8°; 7th day, temp. 99° to 99·2°; 8th day, temp. 99° to 102° to **108°**.

A bath was prepared, but death occurred as soon as immersion was commenced.

Case 41.—Admitted on the 9th day, temp. 104° to 102·6°; 10th day, temp. 105·2° to **107°**.

A bath was then given and repeated on the same day (at 104·6°), a third bath given on the 11th day (temp. 104·6°), a fourth on the 13th day (temp. 105°), after which the temperature for two days reached 104°, and on the 16th and 17th between 102° and 103°.

Type C.—*The pyrexia has a more continuous course, not unlike that of typhoid fever, without violent or excessive exacerbations.* Three cases fall under this class, one of which (36) resembles also in its termination that of Group A.

Case 4.—Admitted on the 3rd day, temp. 103·4°. From 4th to 14th day the temperature was never below 104°, once, on the 9th day, reaching **105·8°**, and on 13th day, **105·4°**. On 15th day, temp. 103° to 103·6°; 16th day, temp. 104° to 104·6°; 17th day, temp. 105° to 104·8°.

Then followed a gradual decline to 103·4° on the 20th day, followed by a gradual ascent to 104·6° on the 24th day; after which fall by lysis, at first with considerable exacerbations. A marked relapse occurred in the 7th week, the temperature on four days reaching above 104°.

Case 17.—Admitted on the 3rd day, temp. 103·8°; 4th day,

temp. 103·4°; 5th day, temp. 103° to 104°; 6th day, temp. 100·8° to 104°; 7th day, temp. 101·8° to **105°**; 8th day, temp. 101° to 104·6°; 9th day, temp. 102° to 104°; 10th day, temp. 101·8° to 104·2°; 11th day, temp. 103·3° to 104°.

After which it only once attained 103°.

Case 36.—Admitted on the 4th day, temp. 102° (*v.* Plate VIII, fig. 4); 4th to 9th day, a gradual ascent with the morning exacerbations to 104·2° and over, and evening remissions to 102° and 103°; 10th day, temp. **105°**, remitting; 11th and 12th, varying irregularly from 104·8° to 100·4° and to 104·2°. Thence, after a fall to 102·2°, a gradual rise to **105·6°** on the 15th day, when death occurred.

Type D.—*Temperature rising gradually to a maximum is then permanently reduced by the cold bath or wet pack.* Three cases conform to this type.

Case 12.—Admitted on the 5th day (*v.* Plate IX, fig. 5); 6th day, temp. 103·4°; 7th day, temp. 104°; 8th day, temp. 104·2°; 9th day, temp. 104·6°; 10th day, temp. 105° to **106°**.

Wet pack applied with effect of permanently reducing the temperature, which, until the 20th day, varied between 101° and 103°.

Case 47.—Admitted on the 4th day, temp. 101·2° to 104°; 5th to 12th day, oscillations, mostly between 101° and 103°; 13th day, temp. 101° to 102·8°; 14th day, temp. 102° to 104·5°; 15th day, temp. 104° to **106·3°**.

A bath was then given, and from that time the temperature never rose above 102·5°, its general range being much below that.

Case 48.—Admitted on the 15th day; 18th day, temp. 101·8°; 19th day, temp. 102·4°; 20th day, temp. 103·4° to 104·4°; 21st day, temp. 105·2° to **106°**.

A bath was given, and next day, after some oscillations, the temperature rose to 105·2°, after which it fell to 103°, and for a period of five days varied between 102° and 103°, reaching the normal on the 30th day.

Type E.—*Cases of severe character in which the tendency to rise to hyperpyrexial heights is very pronounced, so that to control it cold baths have to be frequently repeated.*

Case 9.—Admitted on the 5th day, temp. 101·8° (*v.* Plate IX, fig. 6); 6th day, temp. 102·6°; 7th day, temp. 104·8° to **106·4°**; 8th day, temp. 104° to **106·2°**, bath given; 9th day, temp. 97·6° (after bath) to **109·4°**.

Bath again repeated, and this had to be followed by ten more baths, one or two per diem on successive days, except the 11th, the temperatures attained on each occasion being **106 6°**, **106·8°**, **105·9°**, **107°**, **106·9°**, **106·4°**, **106·7°**, **107·2°**, **105·4°**, and **107·1°**, the last being on the 17th day, when death took place.

Case 13.—Admitted on the 21st day, temp. 100·3°; 22nd day, temp. 101·6° to 102·7°; 23rd day, temp. 102·4° to **105·2°**.

Bath then given, and on the two following days (at 105·2° and **105·8°**), after which fall by lysis to normal on the 23rd day.

Case 16.—Admitted on the 9th day, temp. 103°; 13th day, temp. 104°; 14th day, temp. 104·7° to 103·8°; 15th day, temp. 104·6° to 105·2°; 16th day, temp. **106·2°**, bath given. Followed by rises to 105·7° and 105·2°, and on 18th day, temp. **108·6°**, when another bath was given, followed by rise to **107·6°** and fatal issue.

Case 28.—Admitted on the 8th day, temp. 104·8° to 103·6°; 9th day, temp. 103·4° to 103°; 10th day, temp. 102·4° to 103°; 11th day, temp. 103·8° to 104·8°; 12th day, temp. 103·2° to 104·2°; 13th day, temp. 103·8° to 104·4°; 14th day, temp. 104·8° to **106·2°**.

Bath given and repeated at short intervals, so that on the 14th and 15th days no fewer than eight baths were given, at temperatures respectively of 106·2°, 104·4°, 105·3°, 104·8°, 104°, 103·8°, 104·2°, and 104·4°; one on the 16th day at 103·6°, two on the 17th at 103·4° and 103·8°, one on the 18th at 104°, one on the 19th at 104·2°, two on the 20th at 105° and **105·8°**, one on the 22nd at 104·7°, two on the 23rd at 105° and 105°, one on the 25th at 104·8°, and one on the 34th at **105·8°**, in all twenty baths. The temperature in the intervals varied from 100° to 104°. Death occurred on the 36th day.

Case 29.—Admitted on the 7th day, temp. 103·6° to 104·2° (*v.* Plate IX, fig. 7); 10th day, temp. 104·6° to **106°**.

Bath given and repeated the same day, temp. **106·4°**. Two other baths given on the 11th day at **107·2°** and **107·4°**. Death occurred on the 14th day.

Case 39.—Admitted on the 8th day, temp. 104° to **105·8°** (*v.* Plate IX, fig. 8); 9th day, temp. 104° to 105°.

Bath given and repeated three times on this and the following day at **106·2°**, **105·4°**, and **105·2°**. After which an uninterrupted fall to normal on the 20th day.

Case 44.—Treated by twenty-six baths, the first given on the day of admission, temp. **105°**, and repeated almost regu-

Fig. 5.

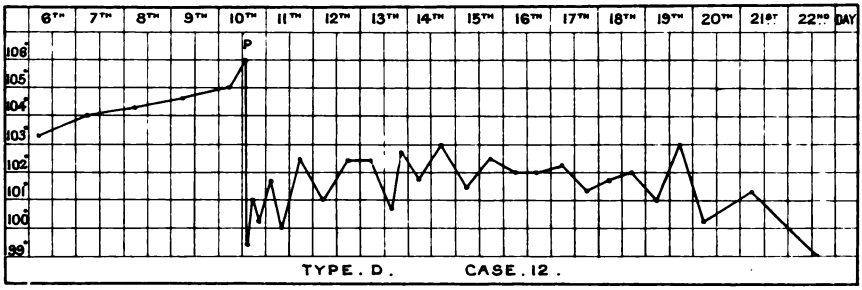


Fig 6.

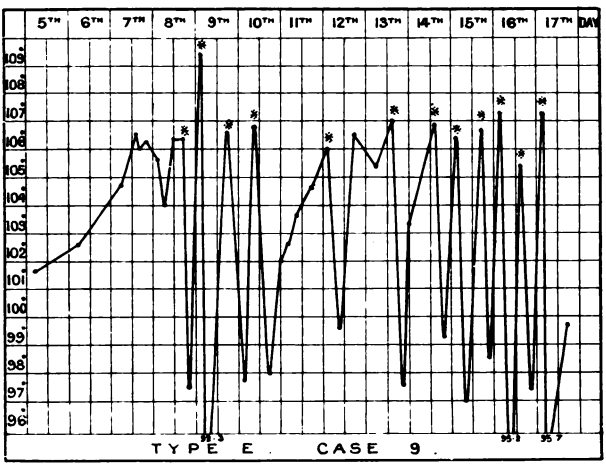


Fig. 7.

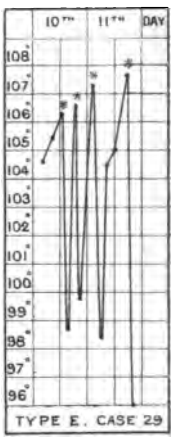
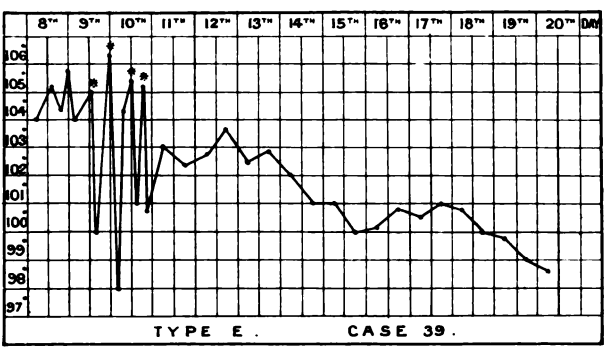


Fig. 8.



*. COLD BATH.
P. WET PACK.

Mintern Bros lith.

larly twice daily for thirteen consecutive days whenever the temperature returned to levels at or between 104° and 105°. Lysis then took place, with considerable oscillations.

CASE 45.—Admitted on the 3rd day, temp. 101·8°; 4th day, temp. 101·6° to 101·2°; 5th day, temp. 100·2° to 102°; 6th day, temp. 101·6° to 103°; 7th day, temp. 104·8° to **105·8°**.

Bath given and twice repeated on this day at 105° and 105·4°; thrice also on the 8th day at 105°, 105·2°, and **105·4°**. After which a fall by lysis to normal on the 16th day.

We are unable to classify under any of these types nine cases, viz. Nos. 1, 2, 10, 15, 25, 33, 38, 42, and 43, and do not think it necessary to analyse further the very irregular course of temperature exhibited by them.

The *intensity* of hyperpyrexia observed in these cases can only be approximately estimated by reference to the maximum temperature attained and the duration of the hyperpyrexial tendency, since the necessity of treatment by the adoption of antipyretic measures checks the rising temperature, and the thermometer does not mark the limit it might have attained. In several cases such measures have sufficed on a single application to arrest the hyperpyrexial rise, in others repeated recourse to such measures has succeeded, whilst in others the case has passed to a fatal termination in spite of them. No doubt these last two classes of cases are of severer type than the first, but to attempt an analysis of them would be a complicated and difficult task. With these reservations the cases may be classified as follows, according to the maximum temperatures actually observed:

Maximum temperature.	No. of cases.	Recovered.			Died.		
		Bathed.	Not Bathed.	Total.	Bathed.	Not Bathed.	Total.
111·1° to 112°	3	0	0	0	1	2	3
110·1° to 111°	1	0	0	0	1	0	1
109.1° to 110°	8	1	0	1	6	1	7
108·1° to 109°	7	1	0	1	5	1	6
107·1° to 108°	9	4	0	4	4	1	5
106·1° to 107°	11	8	0	8	3	0	3
105·1° to 106°	18	7	6	13	2	3	5
104·1° to 105°	8	2	4	6	0	2	2
103·1° to 104°	1	1	0	1	0	0	0
102·1° to 103°	1	0	0	0	0	1	1
Total . .	67	24	10	34	22	11	33

This table also demonstrates that the rate of mortality in rheumatic hyperpyrexia rises in correspondence with the intensity of the hyperpyrexia, but it shows also that even in cases which exhibit, in a marked degree, the symptoms usually associated with that condition, *minus* excessive temperature, fatal cases do occur. Again, we must warn against too hasty a conclusion being drawn from so small a body of facts, which seem to show that the excess of body heat is not the only grave feature of these cases.

In the Appendix will be found two tables, drawn up with a view to ascertain whether any relation exists or not between the maximum temperature attained and the date of onset, and the duration of the hyperpyrexia. A glance at these tables will suffice to show that no definite relation exists in these respects.

Thus of fifty-six cases in which the date of onset was ascertained, this was found to vary from the 4th to the 30th day. Seven cases with maxima above 109° first exhibited the condition on the 6th, 7th, 8th, 12th, 13th, 14th, and 16th days. Fifteen cases, with maxima between 107° and 109°, arose on the 4th, 5th, 6th, 7th, 8th, 9th, 12th, 13th, 16th, 20th, 29th, and 30th days. Twenty-seven cases between 105° and 107°, are distributed on the 4th, 5th 6th, 7th, 8th, 9th, 11th, 14th, 18th, 20th, 22nd, 23rd, and 25th days. Eight cases between 103° and 105° arose on the 7th, 10th, 11th, 13th, 16th, and 27th days, so that although some of the severest cases showed an outburst of hyperpyrexia early in the disease, they also furnished examples of a very late appearance of this symptom.

Similarly with regard to duration, which is known in sixty-three cases, ten cases above 109° lasted 3, 8, 12, 30 hours, 2, 5, 8, and 11 days. Fifteen cases between 107° and 109° lasted 2, 12 hours, 1, 2, 4, 5, 6, 7, 9, and 28 days. Twenty-seven cases between 105° and 107° lasted 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 21, and 29 days. Nine cases between 103° and 105° lasted 1, 2, 3, 7, and 13 days. Here again, although, as might have been expected, the cases marked by the highest degree of hyperpyrexia reached a fatal termination in a few hours, some were prolonged for days without coming to an end; whereas, of the milder cases, some of them terminated nearly as soon as the more severe. The influence of treatment in prolonging life is doubtless shown in many of these cases, and no true deduction can be made unless that is taken into account (*v.* § on Treatment, p. 282, *et seq.*).

MORTALITY OF THE CASES.*—We have already contrasted the rate of mortality in this series of cases with that exhibited by acute rheumatism generally; and have also indicated how, in hyperpyrexia, the death-rate is, to a certain extent, influenced by the degree of the hyperpyrexia presented. It remains only to point out the fact that the fatal cases all terminated within the 6th week of the rheumatic attack. None took place in the first week, and twenty out of the thirty-three occurred in the 2nd and 3rd weeks. Naturally when recovery took place convalescence was prolonged, so that only five out of the thirty-four recoveries occurred within the first 6 weeks, and the rest in various weeks (notably the 7th, 8th, and 9th) up to the 12th.

POST-MORTEM APPEARANCES.—In twenty-four out of the thirty-three fatal cases there are notes of the post-mortem examinations. In five of these cases there were no manifest visceral changes, four of them showing only a remarkable fluidity of the blood. In three other cases this fluidity of the blood is noted, all associated with pulmonary hypostasis, in two with recent pericarditis.

Sub-arachnoid effusion is noted in two cases.

Softened spleen in three cases, softened liver in one, fatty liver in three, and swollen kidneys in two; changes probably directly the result of the fever.

Limiting an analysis to inflammatory lesions of recent date we find that

Meningitis was met with in two cases, alone in one, associated with endocarditis in the other.

Pericarditis occurred in nine cases. It was associated with recent endocarditis in no fewer than five of these cases (two of which showed old valvular disease also); with old endocarditis and dilated heart in one case; whilst it occurred alone in two cases, including that when blood was found fluid. In the other case it was associated with pneumonia and fatty heart. In two of the five cases pleurisy also occurred.

Endocarditis was present in eight cases, in five combined with pericarditis, and in two of these with old valvular lesion. Pleurisy complicated three cases and meningitis one.

Pneumonia is mentioned in two cases, in one it was the sole lesion and was bilateral; in the other it was associated with recent pericarditis.

Pleurisy occurred in four cases; in one the only other

* Appendix E.

lesion noted is fatty heart; in the rest there was pericarditis and endocarditis present. In one case some localised peritonitis had occurred probably by extension of inflammation from the pleura.

TREATMENT OF HYPERPYREXIA.—Experience teaches that there is no measure of greater value in the reduction of body-heat, both for readiness of employment and rapidity of action, than the external application of cold. This measure is peculiarly adapted to cases of hyperpyrexia where the rise to high levels of temperature is extremely rapid. Cold may be applied to the surface of the body in a number of ways, viz. (1) by packing in wet cloths; (2) by encircling the whole or part of the trunk, limbs, or head in a rubber or metal coil through which ice-cold water is made to circulate; (3) by cold affusion or sponging, or (4) by the bath. The last-named being the method most in favour in rheumatic hyperpyrexia, our remarks will be directed especially to it.

Of these sixty-seven cases forty-six were treated on this plan. In many instances its employment was obviously a last resort, and it had no influence at all in averting a fatal issue. We find therefore a mortality among the cases that were bathed almost as high as that among those not so treated. Thus:

Of 46 bathed cases	. 24 recovered,	22 died.
Of 21 non-bathed cases	10 „	11 „

But when we came to analyse the cases according to the severity of their manifestations, as marked by the thermometer, we find a great support given to this measure.* For—

Of the non-bathed cases, only one in which the maximum temperature exceeded 106° recovered; the average maximum being 105·5°.

Of the bathed cases, fifteen (or five eighths of the total) in which the maximum temperature exceeded 106° recovered; the average being 106·4°.

And again, in six out of the eleven fatal cases among the non-bathed the maximum was *below* 106°, and in only three out of the twenty-two fatal bathed cases. The average maximum temperature in these fatal cases was 107° in the non-bathed, 108·2° in the bathed.

This comparison illustrates fairly well the fact that when the hyperpyrexia is of great severity recourse to this treatment is often of no avail, but that, on the other hand, it turns the scale in the direction of recovery when the temperature has

* See Table on p. 279.

not attained high levels; and we must insist upon the fact that in a considerable number of cases recourse to this measure has apparently been too tardy to be effectual. Moreover, it must be remembered that the temperature alone is not the only element giving gravity to the case; other attendant conditions, *e.g.* nervous disturbance and tendency to cardiac failure, also have their influence in the production of fatal results.

Many questions regarding this treatment naturally press for solution, and so far as we can, from a study of the record before us, we shall attempt to answer them. But the matter is one of great difficulty and complexity, and it is quite impossible to formulate any dogmatic conclusions. Such questions arise out of the following facts:

1. The temperature of the body at which bathing was resorted to.

2. The temperature of the water in which the patient was immersed, and if reduced during the immersion, the extent of that reduction.

3. The duration of the bath.

4. The reduction of body temperature whilst in the bath, its subsequent fall, and the whole time taken to reach the minimum. The total reduction of temperature thus effected.

5. The interval between one bath and the next, as showing the nature of the case, whether, that is, the tendency to hyperpyrexia, is marked or slight. This record, taken together with the number of baths required to have a permanent effect, may be adopted as a criterion of the severity of the attack.

A complete analysis of these facts ought to enable us to give answers to such questions as, At what temperature should bathing be had recourse to? What is the most suitable temperature of the bath, and to what degree, if at all, should it be reduced? For how long should the patient be immersed? What reduction may be expected, and how long will it take to effect this? And if it be necessary to repeat the bath, at what temperature (of the body) should the next bath be given? Also can any evil results follow the use of the bath? Is relapse favoured or convalescence retarded?

Important as these questions are we are compelled to state that, owing to the diversity of methods in different hands, the differences in the severity of the cases treated, and the varying importance of other elements in the case, prevent us from giving to many of them an answer that shall be of universal application. The main outcome of this inquiry, however, has been to emphasise the injunctions already laid down by others,

viz. that strict watch be kept for the prodromal signs of a hyperpyrexial outburst, especially those indications of nervous disturbance already mentioned, and a prompt recourse to the bath treatment before the temperature has reached a very high level. We have abundant evidence of the efficacy of the treatment, not merely in reducing temperature, but in allaying delirium, reducing the frequency and strengthening the pulse, and in promoting sleep, even in the most desperate cases; and as all these conditions are heightened by the increasing pyrexia the importance of employing baths early is of great moment. The fact that a certain number of cases in which the temperature does not reach 106° do succumb if untreated by baths, and that only one out of twenty-two that was treated in which the temperature was below 105° (in 104·6°) died, points to the advisability of, whenever possible, having recourse to the bath when the temperature reaches 105°. Were this systematically done we should, we believe, hear less of remarkable cases of hyperpyrexia, although we should have in some cases probably to repeat baths very often, and in others the treatment might happen to be unnecessary. That such a rule would materially diminish the rate of mortality in rheumatic hyperpyrexia there can, we think, be little doubt.

In Appendix F. will be found a tabular statement of the particulars, so far as can be gathered, of thirty-eight out of the forty-six cases in which the baths were given, each bath being noted and the facts above stated recorded. By analysing these facts we learn the following:

Number of baths in individual cases varied from one to twenty-six. It will be seen that, although a tolerable indication of the severity of the case, the number of baths given does not notably influence mortality, that as many died as recovered after one bath alone is explained by the fact that in several cases the patient was moribund and beyond recovery when immersed. Thus, of eighteen cases in which one bath was given, nine recovered and nine died; of eight with two baths, four recovered and four died; of seven with three baths, four recovered and three died; of five with four baths, two recovered and three died; one case, fatal, had five baths; one had six and one had eight, both recovered; one had twelve and died; another sixteen and recovered; one had twenty and was ultimately fatal; two had twenty-six and both recovered.

Temperature of body at which baths given.—This has already been briefly stated as regards the *first* bath in these cases, and as regards subsequent baths we must refer to the

table in the Appendix, the varieties being too numerous for analysis.

Temperature of baths.—In the thirty-eight cases, 142 baths were given in all, with maximum temperatures ranging from 100° to 62°, and minima from 97° to 51°. In three cases the temperature of the bath was raised during immersion, in thirty-one the amount of reduction is not stated, and in the remainder (108) it varied from 2° to 31°,—or more fully stated:

Maxima.		Minima.	
95° to 100°	12 baths.	97°	1 bath.
90° to 95°	25 „	90° to 95°	2 „
85° to 90°	44 „	85° to 90°	9 „
80° to 85°	8 „	80° to 85°	27 „
75° to 80°	27 „	75° to 80°	27 „
70° to 75°	7 „	70° to 75°	19 „
65° to 70°	16 „	65° to 70°	22 „
60° to 65°	3 „	60° to 65°	12 „
		55° to 60°	22 „
		51°	1 „
	142		142

Temperature of bath reduced by	31° in 1 case.
„	25° to 30° in 10 „
„	20° to 25° in 12 „
„	15° to 20° in 13 „
„	10° to 15° in 34 „
„	5° to 10° in 31 „
„	2° to 5° in 7 „
„	raised by 4° in 1 „
„	„ 3° in 1 „
„	„ 2° in 1 „
	Reduction unknown in 31 „
	142 „

Extent to which the body temperature is reduced by bath, and the time taken to reach the minimum.—The influence of the cold bath in reducing temperature is incontestable, and requires no further proof. But it is otherwise when we attempt to estimate the degree to which a given bath will reduce temperature, and, indeed, it is impossible to give any general rule. The analysis of these 142 baths shows plainly that no such general rule obtains—even when we compare baths given under apparently same conditions as to body and bath temperature and duration of the bath—remarkable discrepancies are apparent in the result. If the cases be different, we may find that one bath is followed by a permanent reduction of temperature; in another a succession of baths is necessary before this result is obtained. Such

differences are, of course, easily explicable by assuming the existence of different types of hyperpyrexia; in other words, variations peculiar to the individual or to his special rheumatic attack. But we find similar variations to exist in the same individual, who has been subjected to a series of baths. The table in the Appendix affords several examples of this variation in result, which necessarily forbid any attempt at constructing a regular rule upon the matter. Nor do we find that when many baths are given that the temperature shows less tendency to rise in proportion to their number. Cases have ended fatally after as many as twelve or twenty baths have been given. The same obtains in non-fatal cases, for here also we do not find that the effect of the baths *quoad* extent of fall of temperature, or the length of time elapsing between the minimum and next maximum, becomes more marked as time goes on. Of course, in such cases the time arrives when the measure is no longer called for, when the temperature ceases to rebound to hyperpyretic levels; but this point is not, as a rule, reached by any gradual improvement. In many cases the cessation of hyperpyrexia, so treated, is as sudden and unlooked for as its original supervention, or, as in other cases, its equally abrupt termination after but one bath.

As illustrating the fact that the height of the initial temperature of the bath and the degree of its reduction does not influence materially the degree to which the body-temperature is lowered, we may extract a few examples from the table of cases where large reductions were effected, and contrast them with those where the fall in temperature was small:

Reduction of	13·3°	followed a bath of	80°	reduced to	62°
"	12°	"	76°	"	72°
"	12°	"	62°		
"	11·6°	"	69°	raised to	73°
"	10·3°	"	88°	reduced to	74°
"	10°	"	96°	"	89°
"	10°	"	76°	raised to	74°

Contrast these figures with the following:

Reduction of	2·4°	followed a bath of	90°		
"	2·9°	"	69°		
"	3°	"	90°	reduced to	70°
"	3°	"	80°	"	60°
"	3·2°	"	69°		
"	3·4°	"	88°	reduced to	82°
"	3·4°	"	69°		

Many other examples might be given, but the foregoing suffice to show the difficulty of predicating the degree of reduction in temperature to be effected by any given bath.

Similar differences obtain when the same facts are viewed from the standpoint of the duration of the bath irrespective of its temperature; or when both its duration and temperature are taken into account. But for these and allied facts we must refer to the table in the Appendix.

PART III.—*General conclusions.*

1. That cases of hyperpyrexia in acute rheumatism appear to prevail at certain periods, having in the last decade been remarkably numerous in the years 1873—76, whereas latterly they appear to have been much less frequent. That such excess corresponds in a certain degree, but not in actual proportion, to a similar excessive prevalence in acute rheumatism generally. That the largest number of cases of hyperpyrexia arose in the spring and summer months, whereas rheumatism is relatively more common in the autumn and winter.

2. That whilst very little difference obtains between the two sexes in regard to proclivity to rheumatism, the proportion of males to females exhibiting hyperpyrexial manifestations is as 1·8 : 1. But that as to age no such marked difference exists, nor as to occupation.

3. That the subjects of hyperpyrexia show no undue rheumatic tendency as regards family predisposition.

4. That cases of hyperpyrexia preponderate in first attacks of rheumatic fever.

5. That hyperpyrexia is not necessarily accompanied by any visceral complications, but may itself be fatal. The complications with which it is most frequently associated are pericarditis and pneumonia.

6. That the mortality of these cases is very considerable, hyperpyrexia being one of the chief causes of death in acute rheumatism.

7. That although present in a certain number of cases, and then of much value from their prodromal significance, neither the fact of the abrupt disappearance of articular affection, nor the similarly abrupt cessation of sweating, is an invariable antecedent of the hyperpyrexial outburst.

8. That the supervention of delirium or other symptoms of nervous disturbance is very frequent, either antecedent to or simultaneous with the hyperpyrexia.

9. That there is considerable variability in the date of occurrence and in the duration of the hyperpyrexial condition,

the former ranging, according to our observation, at least from the fourth to the thirtieth day, and the latter from three hours to twenty-nine days.

10. That when death results, it has occurred mostly in the second or third week of the rheumatic attack.

11. That visceral lesions are often absent, and when present are not necessarily extensive.

12. That the prompt and early application of cold to the surface is a most valuable mode of treatment of hyperpyrexia. That the chances of its efficacy are greater the earlier it is had recourse to. That the temperature cannot safely be allowed to rise above 105°. That failing the most certain measure, viz. the cold bath, cold may be applied in various other ways, by the application of ice, by cold affusions, ice-bags, wet sheets, iced injections.

We have endeavoured to embrace in this inquiry the points originally laid down when the Committee was nominated, namely, "to ascertain the causes, consequences, and treatment" of hyperpyrexia; and although our investigation has thrown no light upon the first named, it may have fulfilled its purpose so far as the other two points are concerned. It was considered advisable not to enter upon any theoretical considerations, nor to introduce into the present report any review of the valuable contributions that have been made to the subject. Hyperpyrexia has been studied in the records of cases of acute rheumatism only, and it would be premature to enter into physiological reasonings until the same condition has been reviewed in other acute febrile diseases. Nor has it been possible to investigate the pathological condition of the nerve centres in rheumatic hyperpyrexia, since no recent fatal cases have come under observation. Limited, then, as the inquiry has been mainly to the region of clinical facts, the Committee do not claim for their report that it has embraced all the questions which the subject involves.

Reginald Southey, *Chairman.*
Hermann Weber.
William M. Ord.
Frederick Taylor.
Thomas Barlow.
Sidney Coupland, *Secretary.*

May 19*th*, 1882.

Appendix A.

The cases upon which the Report of the Committee is based were collected from the following sources:

Guy's Hospital, 26 cases, furnished by Dr. F. Taylor. One of these cases is reported in the *Liverpool Med. and Surg. Reports,* by Mr. Paul (Nos. I to XXVI in Table, Appendix G.).

Middlesex Hospital, 22 cases, furnished by Dr. Coupland (Nos. XXVII to XLVIII).

London Hospital, 4 cases, furnished by Dr. Barlow (Nos. XLIX to LII).

University College Hospital, 3 cases, furnished by Dr. Barlow (Nos. LIII to LV).

St. Bartholomew's Hospital, 5 cases, recorded by Dr. Andrew in *St. Barth. Hosp. Rep.,* 1874 (Nos. LVI to LX).

St. Mary's Hospital, 1 case, recorded by Dr. H. Jones in *Med. Times and Gazette,* 1871, November 11 (No. LXI).

Also case by Dr. Barlow (unpublished, No. LXII); by Mr. McNab, published in *Lancet,* 1873, ii, p. 371 (No. LXIII); 3 cases by Mr. Anderson (*Brit. Med. Journ.,* 1871, i, p. 528), LXIV to LXVI; and one by Mr. Paul (*Liverpool Med. and Surg. Reports,* 1876), LXVII.

Appendix B.—*Statistical comparison of cases of rheumatic fever with hyperpyrexia and the generality of cases of acute rheumatism.*

a. Time of occurrence. Season of year.

Cases with hyperpyrexia, compiled for this Report.		Cases of acute and subacute rheumatism treated at the Middlesex Hospital.
1869	2 cases.	
1870	1 „	108
1871	0 „	112
1872	4 „	107 [120*]
1873	7 „	142
1874	17 „	183
1875	11 „	168
1876	12 „	137
1877	6 „	148
1878	3 „	98 [111*]
1879	1 „	97
1880	1 „	
No year given	2 „	

* In the years 1872 and 1878 the hospital was closed during the months of July and August. The figures in brackets denote estimated total for these years (see Fig. 1).

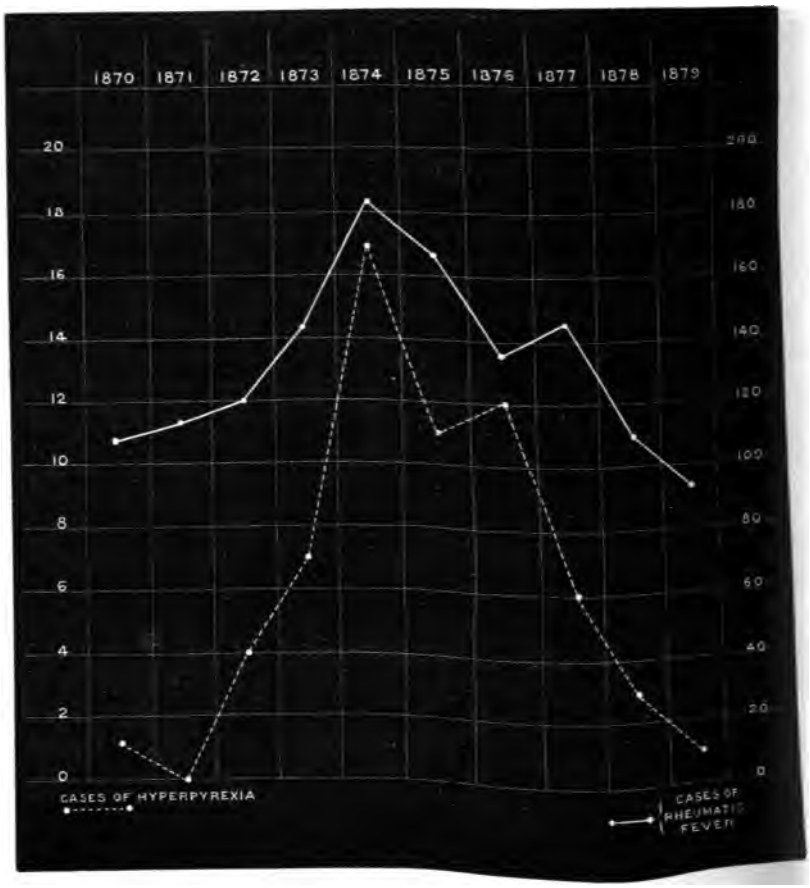

1870
1871
1872
1873
1874
1875
1876
1877
1878
1879
20
18
16
14
12
10
8
6
4
2
0
200
180
160
140
120
100
80
60
40
20
0
CASES OF HYPERPYREXIA
CASES OF RHEUMATIC FEVER

Fig. 1.

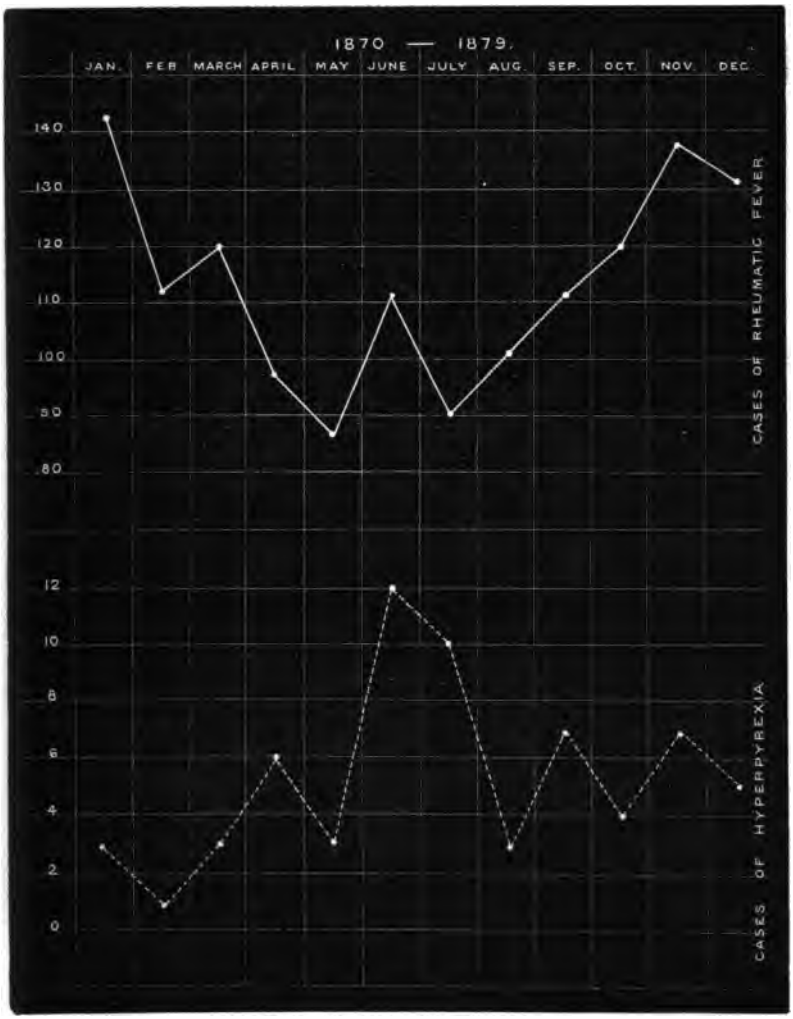

1870 — 1879.
JAN.
FEB
MARCH
APRIL
MAY
JUNE
JULY
AUG.
SEP.
OCT.
NOV.
DEC.
140
130
120
110
100
90
80
CASES OF RHEUMATIC FEVER
12
10
8
6
4
2
0
CASES OF HYPERPYREXIA

FIG. 2.

TABLE *showing the monthly distribution of the cases of hyperpyrexia analysed in this Report* * (Fig. 2).

	1869	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	Total.
January	...	1	...	...	1	...	...	...	...	1	...	...	3
February	..	...	...	...	...	...	1	...	...	...	...	...	1
March	...	...	...	1	1	...	1	...	...	...	...	...	3
April	...	...	...	1	1	2	...	1	1	...	...	...	6
May	...	...	...	...	...	...	2	...	1	...	...	...	2
June	...	...	...	2	1	6	1	2	...	...	...	...	12
July	2	...	...	...	1	1	...	2	2	1	1	...	10
August	...	...	...	...	...	2	...	1	...	...	...	...	3
September	...	...	...	...	2	...	...	4	...	...	...	1	7
October	...	...	...	...	...	1	1	1	1	...	...	...	4
November	...	...	...	...	...	2	3	1	...	1	...	...	7
December	...	...	...	...	...	3	1	...	1	...	...	...	5
Total	2	1	...	4	7	17	10	12	6	3	1	1	64

* Three cases out of the sixty-seven are not dated.

The greatest prevalence of hyperpyrexia was thus in the years 1873 to 1876 inclusive, viz. 47, or nearly 70 per cent. of the 67 cases taken, the largest number occurring in 1874, which corresponds also to the period at which the largest number of cases of rheumatic fever were admitted into the Middlesex Hospital. In the years 1873 to 1876 (inclusive) there were treated 630 cases, or nearly 49 per cent. of the total in the ten years.

For a comparison of the prevalence of hyperpyrexia and rheumatic fever in *the seasons of the year* see Report, p. 264.

b. Sex.

	Hyperpyrexia.	Acute and subacute rheumatism generally.
Male	43	654
Female	24	646
	67	1300

i.e. percentage of males in hyperpyrexia group 64·2; females 35·8
" rheumatism generally 50·3 " 49·7

c. Age.

	Hyperpyrexia.	Rheumatism generally.
Under 10 years	0	24
10 and " 20 "	13	450
20 " " 30 "	29	510
30 " " 40 "	16	190
40 " " 50 "	6	96
50 " " 60 "	3	24
60 " over	0	5
Not stated	0	1

d. Occupations of sixty-seven patients with hyperpyrexia.

	Male.	Female.		Male.	Female.
Blacking maker	1	...	House painter	1	...
Boot maker	2	...	Housewife	...	5
Bricklayer	1	...	Gentleman	1	...
Butcher	1	...	Labourer	4	...
Cook	...	2	Laundress	...	3
Cabdriver	1	...	Packer	1	...
Carman	1	...	Policeman	1	...
Carpenter	1	...	Porter	4	...
Carpet layer	1	...	Potman	1	...
Carpet maker	1	...	Servant	1	... 10
Clerk	1	...	Smith	1	...
Draper	1	...	Schoolgirl	...	1
Dressmaker	...	2	Student	1	...
Footman	4	...	Tailor	1	...
Fireman	2	...	Traveller	1	...
Gardener	1	...	Not given	4	... 1
Gasfitter	1	...			
Grocer	1	...		43	24

e. Family history of a rheumatic tendency.

In 67 cases of hyperpyrexia there was a family history of rheumatic fever in 8 cases of "rheumatism" in 15 „ } *i.e.* 34·4 per cent.

In 1300 cases of acute and subacute rheumatism there was a family history of rheumatic fever or of rheumatism in 355, } *i.e.* 27·3 per cent.

f. Number of the attack (of rheumatism) for which patient came under treatment.

	Hyperpyrexia cases. 67		Acute rheumatism generally. 1300
1st attack	in 37 or 64 per cent.	...	675 or 52·7 per cent.
2nd „	16 or 27·5 „	...	385 or 30·5 „
3rd „	5 or 8·5 „	...	138 or 10·7 „
4th „		...	51
5th „		...	13
6th or more		...	19
Not known	9	...	19

g. Complications.

The leading complications may be contrasted statistically in the two series:

	In cases of hyperpyrexia.		In acute rheumatism generally.
Pericarditis	in 38	or 56 per cent. ...	in 369 or 28 per cent.
Endocarditis	in 27 (6 old)	or 40 „ ...	in 578 or 44 „
Pleurisy	in 17	or 25 „ ...	in 39 or 3 „
Pneumonia	in 8	or 12 „ ...	in 89 or 7 „
Diarrhœa	in 8	or 22 „ ...	in —
Sore throat	in 9	or 13 „ ...	in 15 ?
Albuminuria	in 14	or 20 „ ...	in 59 or 4·5 „

No complications in 9 cases, 6 of which were fatal.

Cardiac complications (pericarditis, or endocarditis, or both) occurred in 46 cases or 68 per cent.

Pneumonia without cardiac complications in 2 cases.

Pleurisy without cardiac complications in 2 cases.

Albuminuria:

Associated with cardiac and pulmonary complications	6
" cardiac only	4
" diarrhœa or sore throat	2
Alone	2

i. Mortality.

Of the 67 cases of hyperpyrexia . . . . 34 recovered.
" " . . . 33 died.
Percentage mortality . 49·2

Of the 1300 cases of acute and subacute rheumatism 1266 recovered.
" " " 34 died.
Percentage mortality . 2·6

Of the 1266 cases 12, or ·9 per cent., were marked by hyperpyrexia.
" 34 fatal cases 10, or 29·4 per cent. " "

The following complications were present in the cases of hyperpyrexia which recovered and in those which proved fatal:

	Recovered.	Died.
Pericarditis	24, or 70 per cent.	14, or 42 per cent.
Endocarditis	11, or 32 "	10, or 30 "
Pleurisy	12, or 35 "	5, or 15 "
Pneumonia	5, or 14 "	3, or 9 "
Diarrhœa	7, or 20 "	8, or 24 "
Sore throat	4, or 12 "	5, or 15 "
Albuminuria	9, or 26 "	5, or 15 "
No complications	3, or 9 "	6, or 18 "

Appendix C.—*Delirium in relation to hyperpyrexia.*

A. *Cases in which delirium preceded onset of hyperpyrexia.*

Reference to General Table.	Dates of onset of Delirium.	Dates of onset of Hyperpyrexia.	Duration of Delirium.	Duration of Hyperpyrexia.	Result.
XXIX	4th day	7th day	11 days	5 days	D.
XXXVI	"	6th "	17 "	11 "	D.
LVIII	"	7th "	7 "	5 "	D.
XXVIII	7th "	8th "	30 "	29 "	D.
XI	8th "	9th "	?	2 "	D.
XXX	9th "	11th "	5 "	2 "	R.
XXXVIII	"	10th "	7 "	3 hours	D.
XLIII	"	16th "	8 "	1 day	R.
VI	"	11th "	?	1 "	D.
XXV	10th "	23rd "	4 "	26 days	D.
VII	12th "	16th "	?	12 hours	D.
LXII	13th "	14th "	3 "	2 days	D.
XXIII	14th "	16th "	?	1 "	D.
XXXI	15th "	16th "	7 "	6 "	D.
LIV	17th "	18th "	3 "	5 "	R.
XXXIII	18th "	?	?	1 "	D.
XIX	21st "	23rd "	?	10 "	D.
XXVII	23rd "	29th "	15 "	7 "	R.
LI	25th "	27th "	5 "	3 "	D.
XXXII	Prior to 30th day	? 30th "	About 3 days	12 hours	D.
LIX	" hyperpyrexia	—?	8 "	4 "	R.

Also 3 cases in which the occurrence of delirium before hyperpyrexia is mentioned (Nos. XL, LXIV, LXVI), but the dates are not given.
D. D. D.

Total number in which delirium *preceded* hyperpyrexia = 24 (recoveries 5, deaths 19).

B. *Cases in which delirium occurred simultaneously with hyperpyrexia.*

Reference.	Date of onset of delirium and hyperpyrexia.	Duration of Delirium.	Duration of Hyperpyrexia.	Result.
XLIX	5th day	7 days	9 days	R.
IX	6th „	1 „	11 „	D.
XLVI	Aft. „ „	7 „	7 „	R.
XLV	7th „	3 „	3 „	R.
X	„ „	?	2 „	R.
XXXV	8th „	7 „	7 „	R.
XXVI	„ „	30 hours	30 hours	D.
LVI	„ „	2 days	2 days	R.
XXIV	„ „	17 „	7 „	R.
L	9th „	2 „	2 „	D.
XX	„ „	4 „	2 „	R.
XXI	„ „	3 „	2 „	R.
LVII	12th „	6 „	4 „	R.
I	13th „	2 „	1 „	R.
XXXIV	„ „	7 hours	12 hours	D.
XVI	„ „	?	6 „	D.
XVIII	18th „	1 day	2 days	R.
XLVIII	20th „	12 hours	2 „	R.
XXXVII	Not dated	?	2 hours	D.

Total number of cases in which delirium arose at same time as hyperpyrexia, recoveries 13, deaths 6 = 19.

D. *Cases in which onset of delirium occurred* after *onset of hyperpyrexia.*

Reference.	Date of onset of Delirium.	Date of onset of Hyperpyrexia.	Duration of Delirium.	Duration of Hyperpyrexia.	Result.
III	6th day	5th day	? days	2 days	D.
LXVII	7th „	4th „	9 „	28 „	R.
IV	9th „	4th „	? „	3 weeks	R.
XIV	10th „	9th „	? „	5 days	R.
XLII	12th „	11th „	1 „	2 „	R.
LIII	14th „	8th „	3 „	9 „	D.
VIII	15th „	12th „	7 „	2 „	R.
XXII	15th „	14th „	6 „	9 „	R.
LV	29th „	26th „	1 „	4 „	D.
XXXIX	9th „	8th „	2 „	3 „	R.

Recoveries 7, deaths 3, total 10 cases.

D. *Cases in which delirium noted, but its relation to Hyperpyrexia unknown.*

Four in number, viz.: XLIV—LXI—LXIII—LXV.
(R.) (D.) (D.) (D.)

In No. XL delirium lasted 5 hours; hyperpyrexia, 8 hours.
„ XLIV „ 13 „ „ 13 „

Total number of cases presenting delirium—57.

E. *Cases in which delirium was absent.*

No.	Maximum Temp.	Duration of Hyperpyrexia.	Result.
II	105·4°	5 days	R.
V	105·6°	1 day	D.
XII	106°	4 days	R.
XIII	106°	3 „	R.
XV	105·8°	4 „	D.
XLI	107°	7 „	R.
XLVII	106·3°	2 „	R.
LX	105·8°	12 „	R.
? LII	104·2°	1 day	R. *
? XVII	105°	7 days	R. *

* No notes of the condition in these cases.

Subsidence of delirium.

	No. of Cases.	Recovered.	Died.
Before termination of hyperpyrexia	11	6	5
With „ „	15	7	8
After „ „	10	8	2
Not noted	21	5	16

Mortality and recovery.

	Recovered.	Died.
Cases in which delirium is noted	26	31
„ no delirium	6	2
„ no mention of delirium	2	—
	34	33

Other nervous symptoms than delirium.

Insomnia	noted in	14 cases	Contracted pupils	noted in	2 cases
Coma	„	8 „	Hesitating speech	„	1 case
Drowsiness	„	2 „	Vomiting	„	2 cases
Muscular tremor	„	14 „	Headache	„	7 „
Subsultus	„	9 „	Deafness	„	6 „
Tremor of tongue	„	7 „	Giddiness	„	2 „
Convulsions	„	2 „	Tinnitus	„	1 case
Tonic spasms	„	3 „	Hyperæsthesia	„	1 „
Risus sardonicus	„	2 „	Silliness of manner	„	2 cases
Floccitatio	„	2 „	Fearfulness	„	1 case
Chorea	„	1 case	Involuntary discharges	„	9 cases

APPENDIX D.—*Statistical analysis of the hyperpyrexial phenomenon.*

TABLE *showing the maximum temperature recorded in relation to the date of onset of the hyperpyrexia.*

	102·1 to 103	103·1 to 104	104·1 to 105	105·1 to 106	106·1 to 107	107·1 to 108	108·1 to 109	109·1 to 110	110·1 to 112	
4th day	...	...	...	1	...	1	...	...	...	2
5th „	...	...	...	1	1	1	...	...	...	3
6th „	...	...	...	1	...	1	...	1	...	3
7th „	...	...	1	3	...	1	...	1	...	6
8th „	...	...	...	1	3	...	2	...	1	7
9th „	...	...	...	2	2	...	2	...	...	6
10th „	...	...	2	...	...	...	...	...	...	2
11th „	...	...	1	...	2	...	...	...	...	3
12th „	...	...	...	...	...	1	...	1	...	2
13th „	...	...	1	...	...	...	1	1	...	3
14th „	...	...	...	2	1	...	...	1	...	4
16th „	...	1	...	...	...	2	...	1	...	4
18th „	...	...	...	1	1	...	...	...	...	2
20th „	...	...	...	1	...	...	...	...	...	1
22nd „	...	...	...	1	...	...	...	...	...	1
23rd „	...	...	...	1	1	...	...	...	...	2
25th „	...	...	...	1	...	...	...	...	...	1
26th „	...	...	...	...	...	...	1	...	...	1
27th „	...	...	1	...	...	...	...	...	...	1
29th „	...	...	...	...	...	1	...	...	...	1
30th „	...	...	...	...	...	...	1	...	...	1
Not known	1	...	2	2	...	1	...	2	3	11
	1	1	8	18	11	9	7	8	4	67

TABLE *showing the duration of hyperpyrexia in relation to the maximum temperature recorded.*

Duration.	102·1 to 103	103·1 to 104	104·1 to 105	105·1 to 106	106·1 to 107	107·1 to 108	108·1 to 109	109·1 to 110	110·1 to 112	
29 days	...	...	...	...	1	...	...	...	...	1
28 "	...	...	...	...	...	1	...	...	...	1
21 "	...	...	...	1	...	...	...	...	...	1
13 "	...	...	1	...	...	...	...	...	...	1
12 "	...	...	...	1	...	...	...	...	...	1
11 "	...	...	...	1	...	...	...	1	...	2
10 "	...	...	...	...	1	...	...	...	...	1
9 "	...	...	...	1	1	...	1	...	...	3
8 "	...	...	...	1	...	...	...	1	...	2
7 "	...	...	1	1	2	2	...	...	...	6
6 "	...	...	...	...	...	1	1	...	...	2
5 "	...	...	...	2	1	1	...	1	...	5
4 "	...	...	...	3	...	1	1	...	...	5
3 "	...	...	1	2	1	...	...	...	...	4
2 "	...	...	2	3	3	1	3	1	...	13
30 hours	...	...	...	...	...	...	...	...	1	1
1 day	...	1	2	1	1	1	...	...	...	6
12 hours	...	...	...	...	...	...	1	2	...	3
8 "	...	...	...	...	...	...	...	2	...	2
3 "	...	...	1	...	...	...	...	...	1	2
2 "	...	...	...	...	...	1	...	...	...	1
Uncertain	1	...	...	1	...	...	...	...	2	4
	1	1	8	18	11	9	7	8	4	67

Mortality and recovery in relation to the highest recorded temperature.

Temperature.	Recovered.		Died.
111·1° to 112° (incl.)	0	...	3
110·1° " 111°	0	...	1
109·1° " 110°	1	...	7
108·1° " 109°	1	...	6
107·1° " 108°	4	...	5
106·1° " 107°	8	...	3
105·1° " 106°	13	...	5
104·1° " 105°	6	...	2
103·1° " 104°	1	...	0
102·1° " 103°	0	...	1
	34		33

APPENDIX E.—*Analysis of mortality statistics.*

TABLE *of mortality and recovery upon particular days of the attack.*

	Recovered.	Died.	Total.
9th day	... ...	XXVI, LXIII, LXVI	3
10th „	... ...	III, XI, L	3
12th „	... ...	VI	1
13th „	... ...	XXXIV, LVIII	2
14th „	... ...	XXIX	1
15th „	... ...	XXXVIII, LXII	2
16th „	... ...	VII, LIII	2
17th „	... ...	XXXVI, LXV	2
18th „	... ...	XXIII	1
19th „	... ...	XVI, XXXIII	2
20th „	XVII	... ...	1
21st „	... ...	XXXI	1
24th „	... ...	IX	1
26th „	... ...	XXV	1
28th „	... ...	XXXII	1
29th „	... ...	LI	1
30th „	... ...	LV	1
31st „	LIX	... ...	1
32nd „	... ...	V	1
35th „	... ...	LXIV	1
36th „	XXX	XXVIII	2
39th „	LVII	XIX	2
40th „	I	XV	2
44th „	XXXV	... ...	1
46th „	XLVIII	... ...	1
47th „	IV, XXIV	... ...	2
49th „	LXVII	... ...	1
50th „	XLI	... ...	1
51st „	II, LIV	... ...	2
52nd „	X, XLVII	... ...	2
54th „	XLIII	... ...	1
56th „	XII	... ...	1
57th „	XXI, XXXIX	... ...	2
58th „	XIV	... ...	1
59th „	XIII, XVIII	... ...	2
63rd „	XXII	... ...	1
64th „	XLV, XLVI	... ...	2
69th „	VIII, XXVII, XLIV	... ...	3
71st „	LVI	... ...	1
75th „	XX	... ...	1
76th „	LX	... ...	1
77th „	XLII	... ...	1
84th „	XLIX	... ...	1
Not known	LII	XXXVII, XL, LXI	4
	34	33	67

The Roman numerals refer to Table of Cases.

Or summarised according to particular weeks.

	Recovered.	Died.	Total.
In 1st week (1 to 7 days)	—	—	0
2nd „	—	10	10
3rd „	1	10	11
4th „	—	3	3
5th „	1	4	5
6th „	3	3	6
7th „	5	0	5
8th „	7	0	7
9th „	6	0	6
10th „	5	0	5
11th „	4	0	4
12th „	1	0	1
Uncertain	1	3	4
	34	33	67

APPENDIX F.—*Table showing the number of cases of rheumatic hyperpyrexia treated by baths; the temperature of the body at which each bath was had recourse to; the temperature and duration of each bath; the reduction effected in the body-temperature and the time taken to reach the minimum; and the interval between one bath and the next.*

Case.	Total No. of Baths.	Day of disease at which baths given.	Temp. of body.	Temp. of bath.	Time of immersion.	Reduction of temp. in bath.	Reduction of temp. after bath.	Total reduction.	Time taken in reduction.	Interval between baths.	Result.	Time at which death ensued after bath.
III	1	6th	104·8°	98·6–94°	40 m.	1·8°	2°	3·8°	50 m.	...	D.	14 hours.
VI	1	13th	107·	...	...	...	...	...	...	...	D.	Rapidly.
VII	1	16th	110·	100	8	14 ?	?	?	?	...	D.	4½ hours.
VIII	3	17th	109·6	66	60	9·6	2·8	12·2	75	10 hrs.		
		18th	103·8	74	13	...	...	3·8	...	12 „		
		„	105·	72	30	...	...	7·4	...	...	R.	
IX	12	8th	106·1	...	...	7·7	0·9	8·6	...	22 „		
		9th	109·4	...	...	...	...	17·1				
		10th	106·6	...	...	...	...	8·8				
		11th	106·8	...	...	...	...	8·8				
		12th	106	...	...	...	...	6·4				
		13th	107	...	...	...	...	9·2				
		14th	106·9	...	...	...	...	6·5				
		15th	106·5	...	...	...	...	9·5				
		„	106·7	...	...	...	...	8·1				
		16th	107·2	...	...	...	...	12·0				
		„	105·4	...	...	...	...	8·0				
		17th	107·1	...	...	...	...	12·4	...	...	D.	4½ hours.
XI	1	9th	104·6	...	10	...	...	...	45	...	D.	21 hours.

Case.	Total No. of Baths.	Day of disease at which baths given.	Temp. of body.	Temp. of bath.	Time of immersion.	Reduction of temp. in bath.	Reduction of temp. after bath.	Total reduction.	Time taken in reduction.	Interval between baths.	Result.	Time at which death ensued after bath.
XIII	3	22nd	106·0°	92°	50 m.	7·2°	0·6°	7·8°	...	16 hrs.		
		23rd	105·2	...	90	4·4	2·2	6·6	...	24 „		
		24th	105·8	...	45	4·8	1·6	6·4	...	...	R.	
XVI	2	15th	106·2	75	30	7·4	1·8	9·2	45 m.	2 days.		
			...	...	20	3·8	7·5	11·3	140	...	D.	24 hours.
XVIII	1	18th	106·1	90	10	5·5	...	...	...	...	R.	
XIX	4	23rd	105·4	90	20	6	...	...	...	15 hrs.		
		„	106·4	90	20	8	...	8	...	34 „		
		„	105·8	80	30	...	...	7·6	...	52 „		
		„	106·4	...	30	...	...	7·8	...	...	D.	
XXI	1	10th	106·4	90	15	...	...	4·6	...	...	R.	
XXIV	2	8th	105·4	...	15	...	...	7·2	...	6 days.	R.	
		„	106	...	...	...	...	7				
XXVI	1	8th	...	90–66	35	...	...	...	...	...	D.	
XXVII	8	29th	107·2	90–67	40	5·4	4·1	9·5	55	5½ hrs.		
		30th	105·1	90–78	25	2·1	2·5	4·6	55	6½ „		
		„	104	82–76	30	...	...	6	50	7½ „		
		„	104·9	90–79	25	2·9	3·3	6·2	30	5 „		
		31st	104·8	89–78	20	2·3	2·8	5·1	30	14 „		
		„	104·9	88–76	20	1·9	4·5	6·4	30	51½ „		
		33rd	104·8	91–76	20	1·8	4·9	6·7	40	24 „		
		34th	103·8	90–76	27	1·8	3·3	5·1	52	...	R.	
XXVIII	20	14th	106·2	98–75	33	3·3	2·9	6·2	60	3½ „		
		„	105·5	91–77	30	2·7	2·4	5·1	60	2½ „		
		„	102·4*	96–89	30	0	1	1	50	2 „	...	* Temp. reduced from

		15th	105·3	86–78	30	2·4	2·3	4·7	50	2 „		104·3° to 102·4° in wet pack of 65 minutes' duration.
		„	104·7	88–82	40	2·8	1·6	3·4	55	3¾ „		
		„	104·2	86·5–78	30	1·9	3·4	5·3	50	2 „		
		„	104	90° about	67	2·3	0·1	2·4	72	1½ „	...	Temp. of bath rose.
		„	104·2	89–84	142	4·1	0	4·1	142	2 „		
		„	104·4	94–71	50	4·8	2·8	7·6	65	36 „		
		17th	103·5	88–78	40	3·2	1·5	4·7	55	9 „		
		„	103·8	92–80	43	3·2	1·5	4·7	53	24 „		
		18th	104·1	90–76	75	5·1	1·4	6·5	115	39½ „		
		20th	105·1	88–74	60	6·4	2·6	9	80	4 „		
		„	105·9	88–74	55	6·5	3·8	10·3	70	44 „	...	Quinine freely given.
		22nd	104·7	88–81	40	4·7	2·4	7·1	60	10 „		
		23rd	104·9	96–82	40	5·1	2·5	7·6	70	14 „		
		„	105	88–81	45	5	2·4	7·4	60	31½ „		
		25th	104·8	90–80	30	3·6	4·8	8·4	40	41 „		
		27th	104·8	89–78	45	3·2	2·9	6·1	65	7 days.		
		34th	105·8	90–87	78	6	1·9	7·9	88	...	D.	
XXIX	4	10th	106·3	86–70	70	5·7	1·7	7·4	85	4 hrs.		
		„	106·3	84–74	90	6·7	2	8·7	170	6¾ „		
		11th	107·2	78	60	7	2	9	?	11½ „		
		„	107·4	69–73	65	7·9	3·7	11·6	...	...	D.	
XXX	1	12th	107	62	45	5	·7	12	210	...	R.	
XXXI	3	16th	107·2	76–69	39	...	...	10	60	7¼ hrs.		
		„	105·8°*	76–68	43	...	...	7·4	98	56 „		* T. 107 (Rect.).
		19th	106·2*	76–72	60	...	...	12	80	...	D.	* T. 106·4 (Rect.).
XXXIV	3	13th	109·8	69	3	...	...	...	...	10 min.		
		„	110	70	12	...	...	5·2	90	2½ hrs.	...	
		„	105·5	69	70	3·3?	...	6·7	115	...	D.	
XXXV	16	8th	106·6	70	23	...	...	8·6	115	16¼ hrs.		
		9th	105	65	15	...	...	6·2	140	7½ „		
		„	104	65	15	...	...	4	30*	15 „	...	*Probable further fall.
		10th	103·9	75	23	...	...	6·9	65	8½ „		
		11th	103·2	68	12	...	...	3·6	85	5½ „		

Case.	Total No. of Baths.	Day of disease at which baths given.	Temp. of body.	Temp. of bath.	Time of immersion.	Reduction of temp. in bath.	Reduction of temp. after bath.	Total reduction.	Time taken in reduction.	Interval between baths.	Result.	Time at which death ensued after bath.
		11th	104·3°	69°	12 m.	...	...	2·9°	70 m.	8½ hrs.		
		„	105·8	69	17	...	...	5·6	60	24 „		
		12th	104·3	70	25	...	...	4	90	4½ „		
		„	104·6	70	15	...	...	4·6	90	3¾ „		
		13th	103·8	69	20	...	...	3·2	120	4¼ „		
		„	103·6	69	20	...	...	3·4	75	5½ „		
		„	104·2	69	20	...	...	4·6	120	5¼ „		
		„	104	69	15	...	...	4·4	105	5½ „		
		„	104·2	72–64	15	...	...	2·9	?	6¾ „		
		14th	104	70	15	...	...	5·2	105	8¾ „		
		„	104·4	73–65	20	...	...	7·2	145	...	R.	
XXXVI	2	10th	104·8	72	45	...	...	4·4	105	9 „		
		11th	104·8	68	45	...	...	3·6*	180	...	D.	* Probably lower at earlier time.
XXXVII	1	? 3rd after admission	108	...	...	...	...	...	...	...	D.	Moribund when placed in bath, and died in few minutes.
XXXIX	4	9th	105	92–70	50	...	...	5*	150*	5 „	...	? More if T. earlier taken.
		„	106·2	88–75	50	...	...	8·2	50	11½ „		
		10th	105·4	80–66	50	...	...	4·4*	90	7½ „		
		„	105·2	80–60	50	...	...	4·6	80	...	R.	
XL	1	? 2nd day after admission	109·8	?	5	0·4	...	0·4	5	...	D.	Moribund when placed in bath.
XLI	4	10th	107	80–60	40	6	2	8	105	11½ „		
		„	104·6	80–60	45	?	?	?	?	19¼ „		
		11th	104·6	80–60	40	4·6	1·6	6·2	90	46¼ „		
		13th	105	?	60	5·4	?	?	?	...	R.	

XLII	1	12th	104·8	76–72	15	5·2	...	5·2	15	...	R.
XLIII	1	16th	104	90–70	45	3	...	3	45	...	R.
XLIV	26	1st day after admission	104·6	...	40	7	...	7	40	5 "	
		"	104·6	...	30	5	...	5	30	15 "	
		2nd day	104·2	85–60	30	6·8	0·2	7	40	7 "	
		"	104·8	86–60	42	4·8	...	4·8	42	16 "	
		3rd day	104·2	85–60	55	3·2	3·2	6·4	85	6 "	
		"	104·8	86–60	54	5·2	2·4	7·6	85	16 "	
		4th day	104·2	85–62	67	4·4	2·1	6·5	90	5¾ "	
		"	104·6	85–62	62	7	1	8	90	16 "	
		5th day	104·5	86–60	65	4·5	1·6	6·1	120	6¼ "	
		"	105	83–58	64	5	1·6	6·6	128	13¼ "	
		6th day	104	87–62	70	4·2	1	5·2	95	8¼ "	
		"	104·7	88–58	62	6·5	2	8·5	90	16¾ "	
		7th day	103·8	86–60	57	5	...	5	57	5¼ "	
		"	104·2	82–60	45	5·6	...	5·6	45	13 "	
		8th day	104	86–60	60	7·8	0·8	8·6	90	8 "	
		"	104	86–60	40	5	...	5	40	16¾ "	
		9th day	104	80–60	65	6	...	6	65	4¼ "	
		"	104·2	82–60	40	4·2	2·4	6·6	70	3¾ "	
		"	103·2	90–64	50	5·2	...	5·2	50	12¾ "	
		10th day	103·5	80–60	60	5·7	...	5·7	60	7 "	
		"	104	80–60	50	6·4	...	6·4	50	12¾ "	
		11th day	104·2	80–62	42	6	2·2	8·2	60	5¼ "	
		"	104	80–60	38	3	...	3	38	18¾ "	
		12th day	103·9	80–65	53	4·3	...	4·3	53	5½ "	
		"	104	80–60	27	3·2	2·4	5·6	37	23¾ "	
		13th day	104·8	80–60	35	4·8	1·6	6·4	...	...	R.
XLV	6	7th	105·8	78–68	20	...	...	7·4	100	7¼ "	
		"	105	80–78	28	7	...	7	28	3¾ "	
		"	105·4	80	22	...	...	6·4	75	8 "	
		8th	104·6	80–72	25	...	...	7·2	45	9 "	
		"	105·2	78	30	...	...	5·4	50	7 "	
		9th	104·7	80–74	27	...	...	6·1	42	...	R.

Case.	Total No. of Baths.	Day of disease at which baths given.	Temp. of body.	Temp. of bath.	Time of immersion.	Reduction of temp. in bath.	Reduction of temp. after bath.	Total reduction.	Time taken in reduction.	Interval between baths.	Result.	Time at which death ensued after bath.
XLVI	3	...	107·4°	88–57°	70 m.	...	...	9·4°	105 m.	24 hrs.		
			106·2	78–51	80	...	...	8·2	105	94 „		
			106	78–67	47	...	...	7·2	135	...	R.	
XLVII	1	15th	106·3	90–83	33	...	...	6·5	...	...	R.	
XLVIII	1	21st	106	90–84	15	...	...	5	...	...	R.	
XLIX	1	...	...	...	...	...	...	...	...	...	R.	
L	2	9th	108·5	100–74	15							
		...	...	100–66	15	...	...	...	...	...	D.	
LIII	4	12th	...	88–70	25							
		14th	...	...	75							
		15th	...	...	65							
		16th	...	...	60	...	...	...	...	...	D.	
LIV	2	21st	106·6	67	25							
		22nd	...	66	20	...	...	...	...	...	R.	
LV	3	28th	109	60	14							
		„	...	60	7							
		30th	...	60	14	...	...	...	...	...	D.	
LVI	2	8th	108	100–97	15	4·2	...	4·2	15	2½ „		
		„	Over 105	92–81	19	...	...	Abt. 8	25	...	R.	
LVII	3	13th	105·2	90–75	25	...	...	5·7 ?	40	44 „		
			25 m. previously									
		15th	107	92–77	18	5·2	...	...	...	4 „		
		„	107·6	98–74	25	7·3	...	7·3	25	...	R.	

LVIII	2	6th	109·8	80–62	45	9·5	3·8	13·3	3½ hrs.	2 dys.		
		„	105	...	58	...	4·4	...	...	...	D.	
LIX	2	? 4th day aft. admission	104·3	90–76	20	...	...	4·5	30 m.	42 hrs.		
			105·5	88–74	22	...	...	8·7	...	...	R.	
LX	1	25th	105·8	90–75	18	...	...	3·4	30	...	R.	
LXI	5	...	...	...	...	...	...	...	...	...	D.	Details of this case are wanting.
LXII	1	14th	111	57	20	...	...	...	...	...	D.	
LXIV	1	15th	110·3	...	...	...	...	...	...	...	D.	Warm bath
LXVII	26	5th	107·2	90–80	20	3·2	4·9	8·1	90	23½ hrs.		
		6th	106	90–80	15	2·4	3·6	6	90	21¼ „		
		7th	105·8	90–80	15	3·2	2·4	5·6	60	67½ „		
		10th	105·8	95–84	29	2·2	3·6	5·8	75	36¼ „		
		11th	105·6	94–81	20	4	2	6	37	11½ „		
		12th	105·6	94–85	20	2·2	2·4	4·6	50	20 „		
		„	105·6	95–85	20	2·1	1·7	3·8	60	7½ „		
		13th	106	94–84	22	2	3·6	5·6	34	7½ „		
		„	106·2	96–84	22	2·6	2·4	5	40	5½ „		
		„	106·2	95–83	26	2·2	4·4	6·6	42	6 „		
		14th	106·2	95–84	20	2·9	3·3	6·2	55	5 „		
		„	106·4	95–84	20	3·2	2·2	5·4	30	5½ „		
		„	106	94–84	25	2·2	2·4	4·6	40	8 „		
		„	106·2	95–84	22	2·6	2·9	5·5	37	7½ „		
		15th	106·6	95–85	22	3·2	2·4	5·6	43	5½ „		
		„	106·2	96–84	21	2·5	2·3	4·8	34	6¼ „		
		„	106·2	96–84	21	2·6	2·4	5	30	7 „		
		16th	106·1	94–85	17	2·6	1·7	4·3	35	6 „		
		„	106·4	98–86	21	3·1	2·2	5·3	96	17 „		
		17th	105·9	95–86	21	2	3·9	5·9	107	7¼ „		
		„	106·1	95–85	21	2·7	2·8	5·5	45	8½ „		
		„	105·7	94–85	21	2·4	2·7	5·1	72	12 „		
		18th	106	95–86	19	2·6	2·2	4·8	85	21 „		
		19th	106·2	95–86	18	3·2	2·4	5·6	50	24 „		
		20th	106	96–84	24	2·2	3·4	5·6	83	28 „		
		21st	106·6	97–85	24	3·2	3·6	6·8	94	...	R.	

Recovery and Mortality in relation to number of baths, and the temperature at which the first bath was given.

Temp. of 1st bath.	1.		2.		3.		4.		5.		6.		8.		12.		16.		20.		26.		Baths.	
	R.	D.	R.	D.	R.	D.	R.	D.	R.	D.	R.	D.	R.	D.	R.	D.	R.	D.	R.	D.	R.	D.		
109·6° to 110°	...	2	...	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rec. 1	Died 4
107·1 „ 108	...	1	1	...	1	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	„ 3	„ 2
106·1 „ 107	4	1	...	1	...	...	1	1	...	...	...	...	...	...	...	1	1	...	...	1	...	...	„ 6	„ 5
105·1 „ 106	1	...	1	...	2	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	„ 5	„ 1
104·1 „ 105	2	2	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	„ 5	„ 3
104	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	„ 1	„ 0
?	1	3	1	1	...	1	...	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	„ 3	„ 7
	9	9	4	4	4	3	2	3		1	1		1			1	1			1	2		24	22
																							Total . . 46 cases.	

No.	Complications. Pericarditis.	Endocarditis.	Pleurisy.	Pneumonia.	Relapses.	No. of baths.	Other measures.	Result.	Duration.	Post-mortem appearances.	Remarks.
GUY'S I	12th day	?	...	...	...	...	Cold sponging	Rec.	40 days	...	...
II	7th day	Syst. apex bruit 11th day	9th day to 29th day	...	Of pyrexia 24th day	...	...	Rec.	61 days	...	...
III	...	...	...	...	...	1*	Ice to head	D.	10 days	Blood fluid; viscera *nil.*	* For details as to baths, see Special Table, Appendix F.
IV	1	...	...	...	...	...	...	Rec.	47 days	...	...
V	On admission	On admission prob. old	Dble. on admission	...	...	...	...	D.	32 days	Bronchitis; œdema of lung; pleural effusion; pericarditis; endocarditis (old and recent)	...
VI	...	...	...	...	...	1	...	D.	12 days	Morb. renum.; heart small	...
VII	1	1 (old)	...	...	...	1	Wet pack	D.	16 days	Old pericarditis and endocarditis; pulmonary hæmorrhages	...
VIII	...	Fugitive murm.	L. 19th day	R. 14th day	...	3	Aconite	R.	69 days	...	...
IX	...	...	...	? v. P.M.	...	12	Quin. every 1½ hr. on 13th d.	D.	24 days	Double pneumonia; old adhesions.	...
X	1	...	...	...	...	...	...	R.	52 days	...	...
XI	1	1	...	...	...	1	...	D.	10 days	...	Temp. 20 min. after death was 110°.
XII	1	...	R. (late)	...	...	...	Wet pack, during which pains return.	R.	56 days	...	...
XIII	...	1	...	...	...	3	...	R.	59 days	...	...
XIV	...	...	1 (late)	...	...	...	...	R.	58 days	...	...
XV	1	1	...	...	...	...	Wet pack, exposure to air	D.	40 days	Mitral stenosis; mitral and aortic vegetations; acute pulmonary œdema	...
XVI	1	1	1	...	...	2	...	D.	19 days	R. pleurisy; pericarditis; tricuspid, mitral, and aortic vegetations; local peritonitis (diaphragm).	...
XVII	1 ?	...	...	...	...	...	...	R.	20 days	...	...
XVIII	1	...	...	...	...	1	...	R.	59 days	...	Phthisis.
XIX	1	1	L. (effusion)	...	...	4	...	D.	39 days	Pleurisy; pericarditis; endocarditis; fatty heart; fatty liver.	Bedsores.

No.	Admitted.		Discharge, date of.	Number of attacks.	Sex.	Age.	Occupation.	Habits.	Family history.	Previous history.		Hyperpyrexia.			
	Date.	Day of disease.								Chorea.	Scarlet F.	Class.	Max. temp.	Onset of.	[illegible]
LIV	Sept. 1, 1880	14th	Oct. 21	2nd	M.	19	Carpet layer	...	R.F.	...	1	I	106·6°	18th	5 d
LV	Sept. 15, 1876	22nd	Sept. 23	1st	M.	45	Packer	...	...	...	...	I	109°	26th	4 d
St. Bartholomew's Hospital Cases.															
LVI	June 26, 1874	4th	Sept. 9	2nd	M.	42	Smith	...	...	...	...	I	108·6°	8th	2 d
LVII	Aug. 24, 1874	7th	Oct. 10	1st	M.	28	Domestic	Heavy drinker	...	...	...	I	107·6°	12th	4 d
LVIII	April 4, 1874	5th	April 12	1st	F.	38	Housewife	...	...	...	...	I	109·5°	7th	5 d
LIX	July 21, 1874	...	?	...	M.	35	Shoemaker	...	...	...	...	II	105·5°	7th after adm.	8 d
LX	June 27, 1874	9th	Sept. 11	...	F.	34	Cook	...	...	...	...	II	105·8°	14th	1 da
Other Selected Cases from various sources.															
LXI	June 22, 1876	...	...	...	F.	15	...	...	...	...	...	II	105·6°	...	..
LXII	July 1879	...	...	2nd	F.	13	Schoolgirl	...	Chorea in mother and sister, proneness to delirium with pyrexia	1 aft. first attack	...	I	110°	14th	2 d
LXIII	July 5, 1873	...	July 14	?	M.	19	...	...	...	...	...	I	111·4°	9th	..
LXIV	July 12, 1869	...	July 15	2nd	M.	29	Laborer.	...	R.	...	...	I	110·3°	15th	1 d
LXV	July 5, 1869	10th	July 12	1st	M.	55	...	...	...	...	...	I	111·1°	...	..
LXVI	Jan. 3, 1870	8th	Jan. 4	1st	M.	31	Gardener	...	...	...	...	I	110°	9th	8 hou
LXVII	Mar. 5, 1875	1st	April 22	1st	M.	22	Student	Sober	...	...	...	I	107·2°	4th	28 day

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